



FRIDAY, APRIL 7.

## Old Norris Locomotive.

The engine shown by the accompanying illustration was built by Richard Norris & Son, at the Norris Locomotive Works, in 1860, for the Brooklyn Central & Jamaica Railroad, for street travel with heavy trains. It drew five large passenger cars filled with passengers and one baggage car up a grade of 40 ft. per mile with good speed. Although so ordered, it proved too light and was purchased back from the company. In 1863 the United States Government purchased it for duty at Key West, where it performed with marked success, drawing a construction train of seven cars, containing 180 men and 10,000 bricks, the whole weighing 75 tons, with perfect ease, although a very large load for such a light engine. Owing to gross carelessness or ignorance, the machine was badly burned or otherwise injured, again bought back, and kept on hand until 1868, when it was sold to the Saucon Iron Co., near Bethlehem, Pa., where it has been in constant use.

Its dimensions were as follows: Cylinders, 7 by 18 in.; driving wheels, 48 in. diameter; truck wheels, 24 in.; tank wheels, 24 in. The boiler had 50 tubes 2 in. diameter by 5 ft. 3 in. long. The weight of engine empty was 21,656

lb.; capacity of tank, 400 gallons; wheel base, 7 ft. 6 in. The fuel burned was anthracite coal.

## Origin of the American Society of Mechanical Engineers.

CLEVELAND, O., March 28, 1882.

## TO THE EDITOR OF THE RAILROAD GAZETTE:

Why is the credit of originating or of first suggesting the American Society of Mechanical Engineers given to Prof. John Sweet, when it is known to many of the members that the idea first emanated from an "Ohio man," Frank C. Smith. Just before Mr. Smith suggested to many of the gentlemen who attended the first meeting of the society the idea of such a society, he talked with me on the subject, saying that he had received a letter from Professor Sweet, who proposed that the correspondents of the American *Machinist* should meet in New York city and get acquainted. I have since learned from him that he wrote to Professor Sweet, the editor of the American *Machinist*, Wm. Lee Church, W. H. Hoffman, Chas. Hague, Jas. W. See and many other mechanical engineers suggesting that they meet in New York city for the purpose of forming a society of mechanical engineers. Professor Sweet at first thought it would be impossible to form such a society owing to the expense, etc.,

## National Association General Passenger and Ticket Agents.

The following is the official report, nearly in full, of the meeting of this association, held in New York, March 21 and 22:

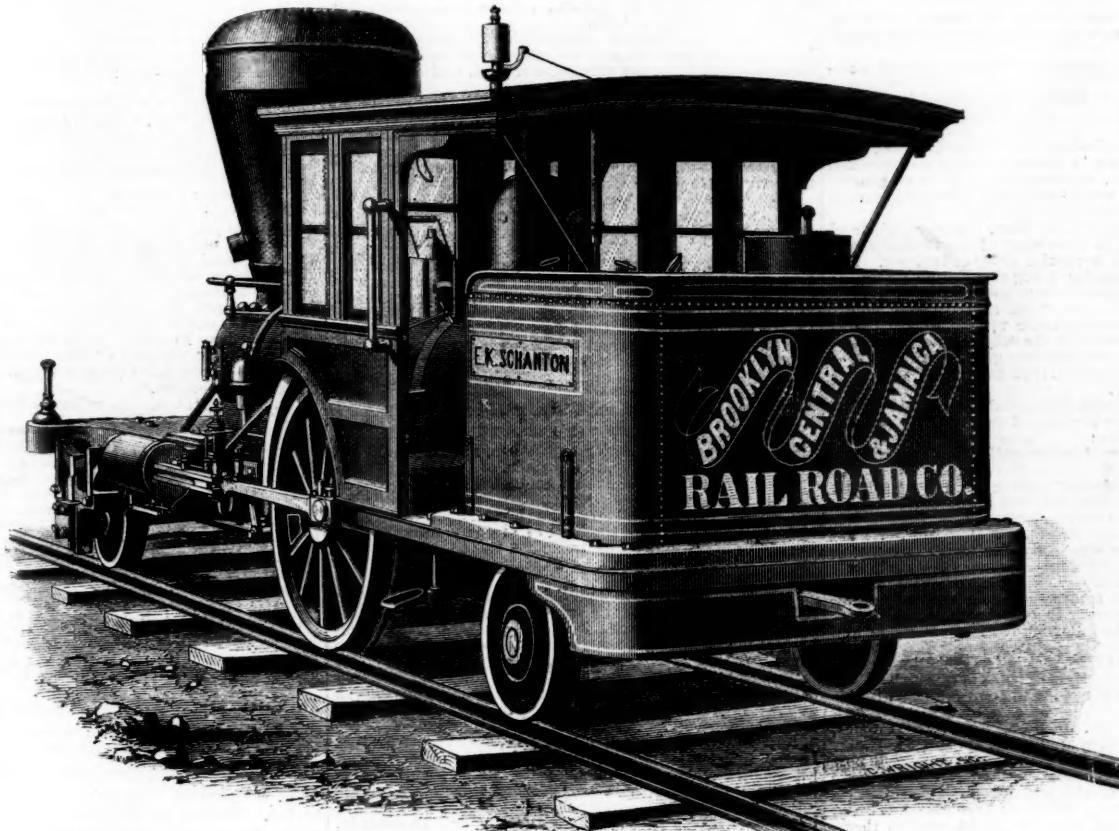
Convention was called to order at 11:00 a. m., President W. B. Shattuc in the Chair.

The roll was called and a quorum found to be present.

The Executive Committee took favorable action on all credentials presented to them, and reported to that effect through their Chairman, Mr. Thrall.

The following is the list of members present. Those marked with a \* have become members since last Convention:

Abbott, John N., New York, Lake Erie & Western.  
Allen, D. C., South Carolina.  
Anthony, W. M., Boston, Barnes & Gardner.  
Archer, John J., Scioto Valley.  
Atmore, C. P., Louisville & Nashville.  
\*Affleck, E. T., Cleveland, Akron & Columbus.  
Baldwin, Wm. S., Buffalo, Pittsburgh & Western.  
\*Bennett, W. H., Toledo, Ann Arbor & Grand Trunk.  
Boylston, S. C., Charleston & Savannah.  
Bronson, H. M., Indiana, Bloomington & Western Ohio Division.  
Buchanan, J. R., Sioux City & Pacific.  
Butterfield, Theo., Utica & Black River.  
\*Campbell, Geo. B., Ft. Wayne, Cincinnati & Louisville.  
Chandler, F., Missouri Pacific.  
Cole, L. M., Baltimore & Ohio.  
Connor, Geo. L., Old Colony Steamboat Co.  
Danley, W. L., Nashville, Chattanooga & St. Louis.  
Dering, H. R., Jeffersonville, Madison & Indianapolis.  
Durfee, W. M., Providence & Worcester.  
Edgar, Wm., Great Western.  
Egan, John, Cincinnati, Indianapolis, St. Louis & Chicago.



LOCOMOTIVE BUILT IN 1860 BY RICHARD NORRIS, SR., PHILADELPHIA.

bs.; capacity of tank, 400 gallons; wheel base, 7 ft. 6 in. The fuel burned was anthracite coal.

The engine had S. Norris' patent radial truck, which enabled it to turn curves easily. It also had his patent direct-action valves, which, it is said, produced a very quick action of the steam.

We are indebted to Mr. H. L. Norris, Jr., of Philadelphia, for the photograph from which the engraving was made, and for the above description.

## Contributions.

## Diameters of Car Wheels.

## TO THE EDITOR OF THE RAILROAD GAZETTE:

Will you please give me the diameter of the different car wheels in use, and say at what points this diameter is measured from, whether inside of and close to the flange, or at the outer edge of tread? I wish to know diameters of wheels for passenger, freight, flat or platform, coal cars, etc., also for short flats for moving iron in track laying. The standard size is what I want, if there is any.

[There is no standard size for wheels. The nominal sizes ordinarily used are 24, 26, 28, 30, 33, 36 and 42 in. diameter, but there is no agreement among makers about the size of the chill-molds used for making wheels of these nominal sizes, and there is as much as 1 in. variation in their diameters. Neither is there any standard point to measure from. This is very much to be regretted, and is no doubt a prolific cause of derailments of cars, but at present railroad com-

attaching. The other gentlemen thought favorably of the idea, and W. Lee Church offered the use of his offices for the first meeting. The American *Machinist* offered its offices for the same purpose, as well as its influence, provided some prominent gentleman, such as Professor Sweet, would issue the invitations, which he finally did. It will thus be seen that to Mr. Smith is due the credit of first suggesting and of performing the first six weeks of correspondence, etc., which ended in the formation of the present Society of American Mechanical Engineers. In justice to Professor Sweet it should be stated that he has never to the writer's knowledge claimed to be the originator of this society, although after Mr. Smith proposed the idea Professor Sweet stated that he intended to propose such a society, notwithstanding that he did not favor the idea when he replied to Mr. Smith's first letter on the subject. The American *Machinist* has, however, on several occasions unjustly and knowingly ignored the above facts in favor of Professor Sweet.

BERNARD ST. VALE,

No. 1,028 Woodland avenue, Cleveland, O.

[We publish the above letter as requested, but it does not seem to be very important to record who first suggested the Society of Mechanical Engineers. Doubtless such a measure was proposed scores of times during the past 25 years, although if Mr. Smith provided the motive power to carry the suggestion out some credit is due him. In this matter, as in patent law, it seems as though it is not the person who first conceives an invention, but the one who first puts it in practical form that is entitled to exclusive rights.—EDITOR RAILROAD GAZETTE].

Flanders, D. J., Boston & Maine.  
Ford, E. A., P. C. & St. L and Penn's Co.  
Foye, Chas. H., Portland & Ogdensburg.  
Fuller, H. W., Chesapeake & Ohio.  
Gallup, E., Boston & Albany.  
\* Hatch, Charles P., Norfolk & Western and Shenandoah Valley.  
Hooper, S. K., Hannibal & St. Joseph.  
Hancock, C. G., Philadelphia & Reading.  
Hanson, A. H., Illinois Central.  
Harrison, F. E., New Haven & Derby.  
Harrison, W. H., Columbus, Hocking Valley & Toledo.  
Hewitt, John C., People's Line Steamers.  
\* Hill, Wm., Chicago & Eastern Illinois.  
Holwill, W. F., Delaware, Lackawanna & Western.  
Hardy, I., Vicksburg & Meridian.  
\* Jaques, E. A., Lebanon Springs.  
Johnson, W. P., Lake Shore & Michigan Southern.  
Kendall, A. C., New York & New England.  
Kendrick, D. M., Delaware & Hudson Canal Company.  
Keller, Murray, Louisville, New Albany & Chicago.  
\* Leavitt, J. F., European & North American.  
Leet, A. B., Grand Rapids & Indiana.  
Littlefield, James, Boston & Bangor Steamship Company.  
Lowell, Percival, Chicago, Burlington & Quincy.  
\* Liscomb, C. F., Portland Steam Packet Company.  
\* Milligan, F., Detroit, Mackinac & Marquette.  
Morse, F. W., Montpelier & Wells River.  
Macmurdo, J. R., Western North Carolina.  
\* Nisius, C. A., Troy & Boston.  
Orme, A. J., Atlanta & West Point.  
Pope, A., Virginia Midland.  
Pope, A., Richmond & Danville, and leased and operated lines.  
Pope, A., Charlotte, Columbia & Augusta, and leased lines.  
Pope, A., Wilmington & Weldon.  
Pope, A., Wilmington, Columbia & Augusta.  
Pope, A., Richmond & Petersburg.  
Pope, A., Petersburg.  
Pope, A., Northeastern (of South Carolina).  
Pope, A., Columbia & Greenville.

Pope, A., Seaboard & Roanoke.  
 Pope, A., Raleigh & Gaston.  
 Pope, A., Raleigh & Augusta Air Line.  
 Pope, A., Charaw & Darlington.  
 Pope, A., Charaw & Salisbury.  
 Ruggles, O. W., Michigan Central.  
 Shattuc, W. B., New York, Pennsylvania & Ohio.  
 Smith, A. D., Pittsburgh & Lake Erie.  
 Stebbins, C. S., Union Pacific.  
 Smith, A. J., C. C. & L., and I. & St. Louis (Bee Line).  
 \*Sprague, J., Jr., Old Colony.  
 Smith, George W., Lake Erie & Western.  
 Smith, Wm. F., Central Vermont.  
 Stennett, W. H., Chicago & Northwestern.  
 Taylor, Jas. L., Savannah, Florida & Western.  
 Thrall, W. A., Chicago & Northwestern.  
 Townsend, H. C., Wabash, St. Louis & Pacific.  
 Tuttle, L., Eastern (Mass.).  
 Van Beunhoven, C. R., Hudson River Line Steamers.  
 Waller, Chas. J., Mobile & Ohio.  
 Whitehead, G. A., Central, of Georgia.  
 \*Wilder, J., Boston, Hoosac Tunnel & Western.  
 Wilson, E. P., Cincinnati Southern.  
 Wood, J. R., Penna.  
 Wrenn, B. W., Western & Atlantic.  
 Zimmerman, D. M., Camden & Atlantic.  
 The honorary members present were W. H. Dixon and H. W. Gwinne. Total number of members, 124; number present, 72.

Special credentials for this meeting were presented as follows:

By Mr. Popple, representing L. W. Filkins; by Mr. C. B. Gray, representing J. Waldo; and by Mr. Geo. Boyd, representing Pennsylvania Railroad.

The next order of business was the making of passenger rates. An informal discussion on the subject took place, which was participated in by Messrs. Ford, A. J. Smith, Pope, Johnson, Atmore, and others. The opinion prevailed that the district and territorial sheets seemed, for the present at least, to answer all purposes. To dispose of the matter, it was moved:

"That the making of rates during the present session be dispensed with." Which was seconded and adopted unanimously.

The next order of business was the location of next meeting. It was moved:

"That the date of next meeting be changed from October to September." Duly seconded and carried unanimously.

Cincinnati and Montreal were placed in nomination. On calling the roll, it was found that Cincinnati had received 16 votes and Montreal 27. Whereupon the Chair announced that the next meeting would be held in Montreal on the third Tuesday of September in the current year.

Unfinished business was next in order. Under this head the Secretary stated that the report of the Committee of Fifteen had been made a special order of business. The Chairman of that Committee being absent, and no report being presented, the Committee was granted further time.

The amendment to the Constitution as recommended by the Committee of Fifteen then came up for consideration. After considerable discussion on the subject, and in view of the fact that said Committee had been granted further time, the further consideration of the recommendation was postponed until next meeting.

Miscellaneous business was announced as next in order. Under this head the following was offered by Mr. Stennett and seconded by Mr. Egan:

"Resolved, When excess baggage collections are reported the reports shall show the form, number and destination of the tickets held by the passenger paying the excess charge, and also the number and destination of the checks placed on the baggage on which the charges are collected."

After some discussion by Messrs. A. D. Smith, Wilson and Stennett the motion was declared lost.

The advisability of constituting continuous passage tickets for the present form of limited tickets next came up for consideration. After some consideration on the subject by various members, and in order to get the matter properly before the Association, the following motion was made and seconded:

"That it be the sense of this Association that tickets sold at limited rates be made continuous passage tickets."

A long and interesting discussion in connection with this motion was had and was participated in by Messrs. A. D. Smith, Atmore, Ford, Boyd, Johnson, Ruggles, O'Connor, Townsend, Egger, Abbott, Wilson, Cole, McMurdo, G. W. Smith, Lowell and Stebbins. Representatives of roads now using the continuous passage ticket stated that they gave satisfaction, and that no trouble had arisen from their introduction. On the other hand, objections were raised, it being stated that the laws of various states would conflict therewith.

There being no objections, the preceding resolution was withdrawn for the purpose of introducing the following:

"Resolved, That the Chair appoint a Committee of Seven properly distributed, to consider this subject and prepare a scheme or plan for the introduction of continuous passage tickets, said Committee to report at the next meeting of this Association."

Which was seconded and adopted unanimously. The Chair appointed as members of said Committee, Messrs. Wilson, Atmore, Boylston, Boyd, Thrall, Wilder and Campbell.

The Chair recognized Mr. Murray Keller, who addressed the Association as follows:

"Mr. President and Gentlemen of the Association:

"I rise in memory of one whose seat in our convention is now forever vacant. But a few short hours have passed since the world has shed the news of the death of one of our most active, valiant and loved members, whom we had learned to love as a brother—loved because he was so much a man; because he was so gentle, and the elements so met in him that nature might stand up and say to all the world, 'this was a man.' Such a man was our lamented Cone—good, kind, generous Cone."

"I now move that a Committee be appointed to draft resolutions of respect to the memory of our deceased brother."

The Chair appointed the following gentlemen as such Committee: Messrs. Keller, Egan, Ford, Bronson, Thrall and Macneurdo.

Mr. C. P. Atmore spoke as follows:

"Mr. President and Gentlemen of the Association:

"There is another vacant seat in our convention: one which was occupied by, I presume, one of the most honorable men that ever belonged to it—Henry C. Wentworth. I move that a Committee be appointed to draft resolutions of respect to his memory."

The Chair appointed as such Committee, Messrs. Ruggles, Johnson, Tuttle, Baldwin, Taylor, Cole and Atmore.

On motion, adjournment was had until 3 p.m.

#### AFTERNOON SESSION.

Convention called to order at 3 p.m., the President, W. B. Shattuc, in the chair.

On motion, and by unanimous consent, the Committee of Seven, appointed at the morning session to prepare a scheme or plan for the introduction of continuous passage tickets was

increased to 15 by the addition of the following gentlemen: Messrs. Townsend, Chandler, Charlton, Waller, Johnson, Lord, Abbott and Ford.

On motion, no objection being offered, the Chair instructed this Committee of Fifteen to also report on the practicability of making the unlimited rate the sum of the locals.

The question of ante-dating limited tickets next came up for consideration. On motion, the Chair appointed the following Committee of Seven, the chairman thereof being the chairman of the General Committee, to report on the subject at the present session: Messrs. Chandler, Ford, Keller, Atmore, Thrall, Cole and Boylston.

A letter was received from Mr. Wells for the Commercial Travelers' Association, requesting a meeting with a Committee of this Association, and, on motion, was referred to the General Committee for report.

By permission, Mr. W. H. Dixon announced that on the adjournment of the Association *sine die*, a meeting would immediately be held to consider the commission question, and invited all to attend.

The General Committee reported as follows with reference to the communication received from the National Commercial Travelers' Association:

"The General Committee recommends that the meeting asked for be declined, as previous considerations of the wishes and claims of the Commercial Travelers' Association show that it is the sentiment of the members of this Association not to accede to such claims, and further consideration of them will be futile of good results."

No objection being offered, the Chair instructed the Secretary to so inform Mr. Wells.

The Committee on Resolutions of Respect to the memory of H. C. Wentworth offered the following report, which was read by the Secretary, all members standing:

Your Committee beg leave to submit the following: That,

"Whereas, In His wisdom the Divine Ruler has called home our associate and beloved friend, Henry C. Wentworth, we bow in humble submission, knowing that our loss is his gain.

"That in his death this Association has lost one of its oldest and most valued members, one whose counsel and advice we shall keenly miss.

"That in expressing our appreciation of his qualities as a business man and official, we desire also to express our admiration of his many virtues as a man, and our sense of personal loss. Therefore, let it

"Resolved, That we emulate his virtues and revere his memory, and that our heartfelt sympathy be extended to his family.

"Resolved, That a copy of these resolutions be sent to Mrs. Wentworth, and also to the official railroad journals of the country for publication."

The Chair addressed the Association as follows:

"In a case like this, where a man dies who was so distinctly a good man, both in his business and social relations, it is not out of place to express our sentiments. I could not do him justice. I knew him for many years; in fact, since I have been in the railroad business. It has been my lot at times to have sharp competition, yet I never knew him to forget that he was a gentleman, and, further, never to forget that he was a Christian. My associations with him have been pleasant, and I shall forever remember them. His family has my sincere sympathy, and when our time comes I hope we may be able to get as kindly a word as he from this Association."

On motion, adjourned until 10 a.m., March 22.

#### SECOND DAY'S SESSION.

Convention called to order at 10:30 a.m., March 22, the President, W. B. Shattuc, in the chair.

The Special Committee on ante-dating limits on coupon tickets submitted the following.

"First. That no road allow its ticket agent under any circumstances to extend the limit of any ticket sold beyond the time agreed upon and published in the rate-sheet by which he is selling except as hereinafter provided in Section 4.

"Second. That no limited ticket shall bear any other date than the actual date of sale; provided, that when it is the rule of a line to change its dating stamps before midnight, the limit shall be the same as if ticket was dated on the day within which it was actually sold.

"Third. That lines taking up the contract coupons of a ticket, or any portion of it, which shows by its date, time of collection, or limit, that the latter has been extended, either by dating the ticket ahead or extending the agreed limit from actual date of sale, shall report the fact to the line issuing the ticket, and the others over which it passes, all of whom shall exact of the issuing line their proportion of unlimited rates on such tickets.

"Fourth. That in bona fide cases of passengers wishing to buy tickets for use at a later time, tickets may be dated in, and the limit given from the date on which passenger intends starting, but in such cases the coupon of the initial line shall be endorsed not good for passage before the day of its date, which shall be named in such endorsement.

"Fifth. That Sections 1, 2 and 3 of these resolutions, except the reference in Section 1 to Section 4, shall be published in all joint or district sheets issued under the authority of members of this Association."

On motion, it was decided to take up the report in sections.

First section, carried unanimously.

Second section, carried unanimously.

Third section, carried unanimously.

A long and interesting discussion took place on Section 4, and was participated in by Messrs. Atmore, Ford, Chandler, Thrall, Stebbins, Townsend, Kendrick and Boyd, and on question being put by the Chair, it was declared lost by a vote of 12 to 10.

A recess of five minutes was ordered by the Chair, during which an informal discussion was had by the members.

On the convention being again called to order, a member who had voted against section 4, moved for a reconsideration. His motion was seconded, and on the question being put by the Chair was carried.

A further discussion took place, which was participated in by Messrs. Boylston, Chandler, Townsend, Pope, and others. Various reasons were urged for the passage of the section in question, among others being the laws of various states which would conflict with Section 1 if Section 4 did not pass. The question was again put by the Chair and carried.

Fifth section carried unanimously.

The report, as a whole, was then adopted without a dissenting vote.

The following was next offered, seconded and adopted unanimously:

"Resolved, That the General Committee be instructed to prepare rules regarding the rates for transportation of special cars for theatrical troupes, to be submitted to this Association at its next regular meeting."

The following resolution was next offered, seconded and adopted:

"Resolved, That the sincere acknowledgments of this Association are hereby expressed to Mr. H. W. Gwinne, President, and through him to the National Railway Publication Company, for the excellent and unusually complete accommodations enjoyed by this Association during its two days' session."

The Committee on Resolutions of Respect to the memory of C. S. Cone, Jr., submitted the following:

"Your Committee appointed to draft resolutions of respect to the memory of our late comrade and associate, C. S. Cone, Jr., beg respectfully to submit the following:

"Whereas, By the confirmation of the sad intelligence which apprised us of the untimely fate of our beloved friend and valued contemporary in the railroad service, C. S. Cone, Jr., we are deprived of a worthy associate and valued friend: this Association of one of its most active and brilliant members; society of one of its brightest ornaments, as also his bereaved and afflicted family of a loving and affectionate son, husband and father, be it

"Resolved, That while an inscrutable Providence, who doeth all things for the best, who has seen fit to remove from our midst our brother, member and friend, we bow submissively to His will, and shall during our brief sojourn in this vale of tears revere his memory, and strive to emulate his many virtues. May they be as lamps to our feet and pilot us through that narrow road to the Throne at which we hope to meet so many of our brethren who have but gone before. Be it further

"Resolved, That this Association, through its Secretary convey to his widow and family an expression of our appreciation of his many attributes and Christian virtues, and of our sincere condolence with them in this their hour of affliction, and that a memorial page in our records be dedicated to his memory, as also that a copy of these resolutions be forwarded to the railroad journals of the country for publication."

After the reading of the foregoing resolutions, the Chair spoke as follows:

"I feel myself utterly incompetent to say or do anything in reference to the untimely fate of Mr. Cone. You all knew Mr. Cone well, and anything I could say would not inure to his benefit or to the benefit of his family. I believe it therefore better to leave the matter as the committee have reported."

The election of officers was next announced to be in order, and the following were unanimously chosen: President, E. P. Wilson, Cincinnati Southern; Vice-President, Lucius Tuttle, Eastern Railroad; Secretary, A. J. Smith, Cleveland, Columbus, Cincinnati & Indianapolis.

To fill vacancies in the Executive Committee, the Chair appointed the following: H. C. Townsend, H. M. Bronson and W. F. Smith.

To fill vacancies on General Committee, the Chair appointed Messrs. C. K. Lord, J. Littlefield and H. W. Full.

No objection being offered, the Chair announced that the gentlemen named would serve their term.

The Chair then addressed the convention as follows:

"Gentlemen: I now introduce to you Mr. E. P. Wilson, of the Cincinnati Southern, your President elect, who will no doubt treat you as I have tried to do at your meetings. I want to say now in leaving the chair, that if I have ever said or done anything in the chair that appeared arbitrary or unkind, it has been from no motive of my own. I have done the best to treat friends and enemies (if I have any) in the fairest manner. I wish also to state that I have treated with the greatest courtesy, and I appreciate it. I hope you will give your new President the same support you have given me. With the chance of offending our tender sisters, he certainly should have your support. Mr. Wilson, of the Cincinnati Southern."

In response, Mr. Wilson made the following remarks:

"Gentlemen: Under ordinary circumstances I am not a bad talker, but the pressure at present is too heavy to admit of a fluent utterance. It is proper that I should say that I have a very deep appreciation of the compliment you have paid me, and also an earnest appreciation of the responsibility of the undertaking. Particularly do I feel so impressed in so low a place and thoroughly competent an officer as my predecessor. I am confident that in his retirement from this position he has left behind him a record of which any man might be proud. I hope to have your forbearance and assistance in accomplishing in some measure the same result."

On motion, the Association then adjourned *sine die*.

#### The Westinghouse Brake and the Blackburn Collision.

It will be remembered that Colonel Yolland, Inspector of the British Board of Trade, in reporting on the Blackburn accident, expressed opinions adverse to the Westinghouse brake. The Westinghouse Brake Company has issued a pamphlet dealing with several questions connected with brakes. The first portion is devoted to replying to Colonel Yolland, and from this we reproduce the following extracts:

A perusal of Colonel Yolland's report on the Blackburn collision, which occurred on Aug. 8, 1880, cannot fail to suggest several ideas forcibly to the mind.

1. The strong animus displayed throughout by Colonel Yolland against the Westinghouse brake, as shown, chiefly, by his ignoring all facts and probabilities which told in its favor, at the same time that there was no evidence whatever, except that of the engine-driver and firemen, against it; by his readiness to accept all the engine-driver said as true, in the face of facts which rendered his evidence valueless; by a strained endeavor to make everything fit his own theories; and by a too apparent desire to convey the idea that the collision resulted in some way from the automatic nature of the brake.

2. Everyone must be struck by the introduction of so much irrelevant matter concerning automatic brakes generally, and about the so-called failures of the Westinghouse brake, by applying itself at improper times; whereas he alleges the Blackburn collision to have been caused, on the contrary, by the failure of the brake to act when required, a class of failure which is well known to be peculiar to and inseparable from non-automatic brakes, on account of their defective principle.

Colonel Yolland has, moreover, so contrived to mix up the Blackburn collision with this other irrelevant matter, and so used the alleged failure of the brake as a foundation upon which to build his arguments, that it will be necessary first to explain how the collision really came about; and more particularly this is required on account of the use to which the report has been put by the opponents of automatic brakes.

A train from Liverpool, while standing in Blackburn station, was run into by an express train from Manchester, at a speed of from 25 to 30 miles per hour, killing eight and injuring 64 people. The signals which ought to have protected the Liverpool train were off at the time, and this to most people would be sufficient to account for the accident. The driver, however, after having had time for reflection, said that the brake failed to act; but he did not say this, as will be seen, immediately after the accident; and although there is not the slightest evidence, either positive or negative, to support his statement. Colonel Yolland concludes this man spoke the truth. At the same time, there is evidence, both positive and negative, that the brake acted as perfectly—when it was applied—going into Blackburn as it had done at the previous stations on the journey; and it

would have prevented the collision if it had been applied in time.

Several passengers by this train gave evidence before the coroner in Colonel Yolland's presence, and swore to feeling the brake act distinctly on the different carriages in various parts of the train. The following testimony alone is conclusive:

William Evans: "On reaching the West Cabin I felt the deep grinding bite of the brake on our carriage. We came into the Blackburn station at as rapid, or more rapid speed, I should say, than at any period of our journey between Manchester and Blackburn. Immediately after the collision, and after we had attended to the injured, I spoke to the driver of the train. I asked him, 'Why in the world did you bring that train into this station at such a rate?' He replied that he could not see the train standing in the station, nor could any other man, until he was coming into the station;" and, "The driver did not say to me that the Westinghouse brake would not act."

The guard, whose van was the third vehicle from the engine, also made an important statement. He said in his evidence, "I opened the valve of the Westinghouse brake in the van after we had passed the West Cabin, and I did not hear any rush of air." Now, the brake is allowed to have been all right at Over Darwen, the previous stop, and five and a half or six minutes before reaching Blackburn; and the driver says there was 80 lbs. of air in the gauge passing the point where he applied the brake, less than one minute from the time of the collision. If, therefore, the guard found no air on entering the station, it was clearly because the driver had already let it out of the brake pipe—that is, had applied the brake—although he had done so too late to be of material use.

It is a fact, moreover, that the brake acted on the engine and four uninjured carriages even after the collision, and that nothing was found amiss with the brake couplings, valves, etc., on the injured carriages, or in the state of the train generally, to account for the accident in any way from any failure of any part of the brake.

We maintain that, having regard alone to the fact that the signals were not at danger, it is quite superfluous to turn to the brake as a cause of the collision. The driver states that on the few occasions when he had run to Blackburn before, the station had always been clear; that he had never taken that particular train into the station previously; that he had himself worked the brake only two or three times before, without any proper instruction; that his usual place for stopping was the further or east end of the platform, at a point about 165 yards past the point of collision, and that he expected to be able to do so on this occasion. And Colonel Yolland allows in his report that the driver was quite justified in his endeavor to get to this place, so far as the signals are concerned.

Under these circumstances, then, there is nothing to justify the assumption that the brake in any way failed. Had only the last home signal been at danger, had the express then run 240 yards past it, and had it then struck as it did another train at 25 to 30 miles per hour, there might have been grounds for Colonel Yolland's conclusions, but as it is there is no excuse whatever for them.

How the collision occurred is perfectly clear. The driver, having just descended a steep incline of  $3\frac{1}{2}$  miles long, was running at a high speed up to the station, intending to proceed to the further end of the platform as usual, and to make a smart stop similar to what he had been doing at previous stations, when suddenly he found another train had got there first. He applied the brake, whistled, and reversed his engine, but for the want of about 80 yards further distance, within which he could easily, by means of the brake at his command, have brought his train to a stand, came into collision with the unprotected train already there.

This view, however, did not commend itself to Colonel Yolland. He preferred to accept the statement of the driver that, on trying to apply the brake—at a point about half a mile from where he intended to stop—some mysterious irregularity, the nature of which cannot be definitely covered, suddenly occurred to the brake. For the purpose of justifying his theories, Colonel Yolland made a series of experiments with a similar train to the Manchester express, the brake always being applied at the spot indicated by the driver. In one experiment, when the brake coupling was purposely separated between the first and second carriages—as had been suggested might have been the case at the time of the accident, without any evidence to justify the supposition—the train stopped ten yards short of the point of collision, from an initial speed of 50 miles an hour, as against 40 mentioned by the driver as the speed on the day of the collision. At last, by cutting off the brake from the train, and allowing it to act upon the engine wheels only, the point of collision was in one experiment passed. Colonel Yolland concluded, therefore, that the collision was caused by the brake refusing to act, except upon the engine wheels; notwithstanding the positive evidence that the couplings between the engine and train were found properly connected after the accident. The last mentioned experiment was not made under circumstances stated by the driver to have existed, but it seems to have been necessary to confirm Colonel Yolland in the fixed conviction with which he began, conducted, and concluded the inquiry, viz., that the brake had failed. None of the experiments made, however, were of any sort of value, for the same results might have been obtained by running up close to the station, and then applying the brake over the whole train.

Colonel Yolland's theories did not find much acceptance from the coroner's jury, for, as a result of the experiments and the evidence, they, in their verdict, entirely ignored the brake, and found, as was apparent to those who closely, and with an unbiased opinion, followed the evidence from the first, that the collision was caused solely by the system of working the signals, and by the recklessness of the driver.

The fact that the Westinghouse Brake Company called no witnesses, is thus remarked on by Colonel Yolland, who says: "I was prepared to hear what any witnesses they—the Westinghouse Company—might desire to call could state, as to any facts bearing upon the case, or to receive any statement which they might think proper to make, after hearing all the evidence, and noting all the experiments which were made, and I informed Mr. Westinghouse that I would delay making my report for ten days, as he was obliged suddenly to go to the Continent."

As to this remark, it may be mentioned that Colonel Yolland said in substance to Mr. Westinghouse, that any statement made by him would not have weight; and, in reply to Mr. Westinghouse's remark that he could produce passengers who had felt the brakes upon their carriages on entering Blackburn Station, Colonel Yolland said that he would not believe any witness he might present who would make such an assertion, because it was impossible for any one to tell whether a brake was acting upon the carriage he was riding in or not. We may add that, after due consideration of the evidence which had been taken, both before him and before the coroner, and the results of the experiments, coupled with the verdict of the coroner's jury, it was felt that we should derive no benefit from accepting Colonel Yolland's offer, delaying any statement before him. It seemed impossible to this company that Colonel Yolland could so far ignore

the facts and probabilities, and allow his antipathies to lead him to such erroneous conclusions.

Nothing further, perhaps, need be said as to Colonel Yolland's allegation of the failure of the brake; but Colonel Yolland has, as we have said, discussed a good deal beside the Blackburn collision in his report, and as it concerns the main subject of this paper, we may follow him a little further.

Much of the irrelevant matter before referred to amounts to a condemnation of both automatic and non-automatic continuous brakes. Now the question of automatic versus non-automatic brakes is one of principle only, and Colonel Yolland cannot consistently condemn the principle of the former, both on account of its liability to go on when not wanted, and also for refusing to act when it is wanted; yet this is what he actually does. Indirectly, too, he very effectively condemns non-automatic brakes on account of their inability to stop trains in case of a breakaway, and for giving no indication to a driver of a coupling having come undone. Though clearly not what was intended, Colonel Yolland's report thus furnishes strong arguments in favor of the principle of automatic brakes, his conclusion in effect being: (1) That the collision was caused by the separation of a hose connection in the front part of the train in such a manner as to render the application of the brakes on the rear carriages impossible; (2) that any brake which may fail to act in consequence of a brake coupling coming apart so as to render the brake inoperative, should not be used on railways; and (3) that brakes which may fail as above, are dangerous because the train may then overrun the intended stopping place, and thus cause a collision.

We have always contended that any brake so constructed that the couplings can come apart and thus render the brakes useless without warning to the driver, is a dangerous appliance, and we welcome Colonel Yolland's support in favor of these principles, and consequently in favor of automatic, as against non-automatic brakes.

The difficulty of our opponents in this case lies, of course, in the fact that the brake in use was automatic, while the failure suggested was one peculiar to non-automatic brakes. If what was suggested took place, and a coupling came apart, and by closing the valves gave no warning to the driver, the brake in question was thereby only reduced temporarily to the level of a non-automatic brake, the essential principle of which is that its failure must occur without proper warning.

Colonel Yolland makes the extraordinary statement that the Westinghouse brake connections "frequently" become uncoupled "without indication to the driver. How many cases would justify the word 'frequently' we do not know, but can only say that since the Board of Trade returns have been published—June, 1878—only two of such cases are mentioned, against scores on the part of other brakes. In view of this fact, and considering the opinions he has expressed, it would only have been fair, and certainly more relevant than a good deal in the report, if Colonel Yolland had referred to these other brakes and condemned them in proportion to their liability to become useless when required to prevent an accident. For the six months ending June 30, 1881, there are no less than eighty cases actually reported in the Board of Trade returns, of the Smith vacuum brake alone having failed without warning, on account of the couplings coming undone or other equivalent dangerous failure.

We were, however, so impressed with the use which was made of the two instances of alleged failure before referred to, and saw so plainly that, under similar circumstances again arising, we should be laid open to the same accusations, that we promptly decided to make a complete change from the automatic coupling back to the old form with cocks; so that, in future, any such theories as those advanced in this case will be impossible; for should a pair of couplings be separated from any cause whatever, after the train has once been properly coupled up and charged, the warning which Colonel Yolland considers so essential will unfailingly and unmistakably be given to the driver.

Two cases are mentioned in Colonel Yolland's report where trains fitted with the Westinghouse brake overran stations, viz., Stanningley and Dover. The former is in the Board of Trade returns, and we need only say that the circumstances were not analogous to those at Blackburn, and were easily accounted for. As to the case at Dover, which Colonel Yolland calls a "somewhat similar case to that at Stanningley," Colonel Yolland showed our representative a letter he had received from Mr. Kirtley, the Locomotive Superintendent, on this subject; and it certainly did not justify such a statement. The letter was to this effect, viz., that Mr. Kirtley had not reported the occurrence to the Board of Trade because he did not consider it was owing to the failure of the Westinghouse brake; that the driver had not reported it as a failure of the brake; and that he decided to give the brake the benefit of the doubt. Colonel Yolland's reference to this case, and his omission of this explanatory letter, are sufficiently indicated by his bias.

In the interest of safety on railways, Col. Yolland, again, should not have singled out one brake in particular. He would have found from the Board of Trade Reports on Accidents, that there had been six collisions resulting from the failure of the Smith vacuum brake, and he should have censured this and other brakes, instead of the Westinghouse alone, if censure were necessary.

After such statements as have been criticised, it is almost with astonishment one reads that an automatic brake is required sometimes, even in Col. Yolland's opinion. As, for instance, when a train breaks into two parts, so that the rear portion may be prevented from running back down an incline into a following train, or forward into the front part on the speed being slackened. Colonel Yolland has himself, indeed, on the occasion of such a case as this occurring near Blaby Junction, on the London & Northwestern Railway, made the following remark in his report—dated 26th December, 1877—on it to the Board of Trade: "The collision would not have taken place at all if the train had been fitted with an automatic brake."

The result of this brief analysis, then, is that we find Colonel Yolland has—(1) directly condemned non-automatic brakes, because they give no warning to the driver on a coupling becoming undone, and thus rendering the brake useless; and indirectly this is clearly an excellent argument in favor of automatic brakes; (2) He has directly advocated automatic brakes, because they are wanted in case of a breakaway; and indirectly this is an excellent argument against non-automatic brakes.

It is with reluctance that we criticise the report of Colonel Yolland, but we are compelled to do so in consequence of his remarks during his inquiry, by his mode of conducting his inquiry, by the remarks in his report, and by his going out of his way to introduce material entirely outside his inquiry, all of which justify much more than we have said.

Colonel Yolland might, we think, have remembered that the Westinghouse brake couples more nearly than any other brake with the conditions laid down by the Board of Trade, of which he was the representative. And, further, he should have hesitated to be so severe in his strictures in a case where no positive evidence was forthcoming, on what is, at all events, an appliance intended to save life and property, and which the proprietors have for many years spared no expense in bringing to perfection.

#### Judge Baxter on Railroad Rates.

A decision recently rendered in the United States Circuit Court, in Ohio, is of considerable interest both to railroads and to the customers of railroads. The suit was brought against the Pennsylvania Railroad, and grew out of a discrimination made in the freight charges on coal between Salineville and Cleveland. These charges were graded by the road according to the amount shipped, so that large shippers obtained lower rates than small ones. The court lot only held this to be illegal, but said that the shipper had a choice of remedies. He might either compel the company to carry his freight at the lowest schedule rates, or might pay the rate demanded, and afterward recover by suit the difference between this and the proper rate. The following language was used by Judge Baxter in stating the grounds of his decision: "If a railroad corporation could, with impunity, carry the same class of freight over the same road and between the same points for one man or class of men at a less rate than they exacted from other and competing interests; if they could lawfully require one man to pay fifteen cents per bushel for the transportation of wheat from Cleveland to New York, while they did the same service for another and rival merchant for ten cents, or bring other merchandise for certain favorite friends and refuse to carry for others, they could make and unmake the fortunes of whomsoever they chose."

The legal theory on which this decision is based is that railroads are not only private corporations, but public highways as well; that the companies are common carriers of merchandise and passengers, and as such are bound to make their charges not only reasonable, but equal. While this theory lies at the foundation of the whole law which regulates the relation between railroads and the public, the decision itself will probably surprise most persons on account of the length to which it goes, and the peculiar character of some of the consequences which it seems to involve.

It will be objected that a discrimination between large and small shippers is not a violation of the principle of equality in rates; that the difference really grows out of the nature of the business; that the actual cost of transportation does not increase in the direct ratio of bulk, and that the so-called discrimination is, in reality, merely a reduction like that which in all kinds of business marks the difference between retail and wholesale. It will be urged that the only discriminations which the courts can take hold of are discriminations made to favor particular shippers, or build up particular industries. It should at the same time, however, be admitted that equity would under all circumstances require the same rates for the same quantity transported.

To prevent railroads from making different rates for large and small shippers would seem also to involve the necessity of preventing them from doing the same thing with regard to passenger traffic. That there is anything unfair or illegal in "commutation" or "mileage" tickets, however, has never before been suspected.

That part of the decision which holds that the shipper may recover back the excess of rate paid will also be criticised as being in conflict with the general principle that the agreement to transport goods, like any other agreement, must be measured by the actual terms made by the parties; that in the case of railroads, these are always contained in the bill of lading; that the shipper is bound by this, just as he is by any other contract, and consequently cannot be allowed to go into court to alter the terms in his own interest after the service for which he bargained has been rendered. The reply to this is, of course, that the bill of lading is usually not so much a voluntary undertaking on his part as a notification by the company to him of the terms on which they take his goods; that he, having no other means of transportation, is helpless, and consequently not a free agent in contracting. But it must be admitted that, reasonable as this appears at first sight, it is opposed to the great weight of judicial authority in this country; the courts having generally held that bills of lading are governed by the same rules as all other contracts. Still this view must be that on which Judge Baxter bases his opinion as to a remedy.

The decision will of course be appealed from, and on the appeal the points involved in it will be fully argued and considered. It promises before it is ended to prove an interesting and valuable contribution to the transportation controversy, the judicial aspect of which has a very important bearing on all schemes of legislative reform. The equality of rates—what it means, and how far it should be carried—really presents, as will be seen from Judge Baxter's decision, very delicate legal no less than economical questions, which cannot be disposed of by simply saying that rates shall be equal.—*New York Evening Post*, April 4.

#### Origin and Destination of Trunk Line Freight in 1880.

We copy below "Statement E" and "Statement F," given in Mr. Fink's report on the "Adjustment of Rates to the Seaboard," which are exhibited graphically and with some comments on our editorial page.

##### EAST-BOUND FREIGHT.

*Tonnage and Per Cent. of Total Tonnage from each Point of its Origin carried from the West and Terminus of the Four Trunk Roads (N. Y. Central, N. Y. L. E. & Western, Penn., Balt. & Ohio) to Points East of the Trunk-Line Terminus, during the Year 1880.*

*NOTE.—The Tonnage forwarded from Competing Points does not include that which passes through these Points on through Bills of Lading.*

Points of origin.	Tonnage.	P. c.
I.—From principal cities of competition, from which traffic from which has been divided.	2,752,613	26.25
Chicago.....	1,512,080	14.43
Pittsburg.....	390,148	3.72
St. Louis.....	337,505	3.22
Indianapolis.....	284,460	2.72
Cincinnati.....	152,756	1.46
Louisville.....	73,468	0.70
Total.....	2,752,613	26.25
II.—From other principal cities, from which traffic should be divided.		
Milwaukee.....	276,800	2.66
Cleveland.....	2,4,620	2.04
Detroit.....	140,324	1.34
Toledo.....	388,778	3.71
Total.....	1,022,522	9.73
III.—From minor points of competition, from which traffic can also be divided.		
Mississippi River points.....	326,736	3.12
Bloomington.....	78,532	0.75
Springfield, Ill.....	5,016	0.05
Cairo.....	4,500	0.04
Hamilton, Ont.....	8,529	0.08
Toronto.....	10,06	0.10
Evansville.....	16,349	0.15
Fort Wayne.....	61,880	0.59
LaFayette.....	33,007	0.32
Terre Haute.....	27,117	0.26
Vincennes.....	32,112	0.31
Columbus.....	32,225	0.31
Dayton.....	18,120	0.17
Sandusky.....	45,496	0.46
Total.....	734,438	6.00

IV.—From terminal points of trunk lines.		Tonnage.	P. c.
Buffalo	1,031,792	9.83	
Salamanca	18,246	0.17	
Dunkirk	19,348	0.19	
Erie	46,780	0.45	
Pittsburgh	274,231	2.62	
Wheeling	25,700	0.25	
Parkersburg	9,270	0.08	
Bellair	4,757	0.05	
Total.	1,430,130	13.64	

V.—From states, exclusive of tonnage already reported from principal cities and competing points.		Tonnage.	P. c.
Wisconsin and N. W. and W. of Mo. Riv.	320,805	3.06	
Iowa	260,246	2.54	
Illinois	900,741	8.50	
Missouri	38,377	0.36	
Ark. Tex. La. and Ind. Ty.	49,899	0.48	
California	22,845	0.22	
Michigan	399,113	3.80	
Western Canada	157,649	1.50	
New York state	43,013	0.41	
Western Pennsylvania	107,229	1.02	
Ohio	1,325,631	12.65	
Indiana	606,619	6.64	
South of Ohio River	168,346	1.60	
West Virginia	2,003	0.02	
Unknown	49,937	0.48	
Total.	4,548,543	43.37	
Grand total.	10,488,246	100.00	

*Tonnages and the Percentages of Total Tonnage originating from the several States, classified according to their Origin in States.*

Origin by states.		Tonnage.	P. c.
Wisconsin	599,605	5.72	
Iowa	502,455	4.78	
Missouri	545,431	5.20	
Ark. Tex. La. and Ind. Ty.	49,899	0.48	
Illinois	2,003,129	19.91	
Indiana	1,169,029	11.15	
Michigan	569,437	5.14	
Ohio	2,182,962	20.81	
South of Ohio River	241,814	2.31	
Western Pennsylvania	4,824,246	4.08	
West Virginia	37,063	0.35	
New York state	1,112,359	10.60	
Western Canada	184,804	1.78	
California	22,845	0.22	
Unknown	49,937	0.48	
Total.	10,488,246	100.00	

#### WEST-BOUND FREIGHT.

*Statement showing the Tonnage of Freight shipped to each Destination and its Percentage of the Total Tonnage originating at the Four Atlantic Cities and eleven competing New England Points and carried to the West by the New York Central, the New York, Lake Erie & Western, the Pennsylvania, and the Baltimore & Ohio railroads; also including traffic carried by the Central Vermont and Grand Trunk from Boston and New England points, during the year 1880.*

Destination:	Tons.	P. c. of total.	Destination:	Tons.	P. c. of total.
Chicago	346,582	18.52	Buffalo	57,787	3.08
Peoria	11,012	0.59	Pittsburgh	260,723	13.93
St. Louis	115,776	6.18	Wheeling	22,576	1.21
Indianapolis	30,955	1.65	Parkersburg	4,592	0.24
Cincinnati	118,788	6.35			
Louisville	37,060	1.98			
Total.	660,162	35.27			
Milwaukee	43,209	2.42			
Cleveland	82,388	4.40			
Detroit	74,955	4.01			
Toledo	30,374	1.62			
Total.	232,916	12.45			
Miss. River points	16,927	0.91			
Mo. River points	37,029	2.01			
Bloomington	3,39	0.20			
Spr.field	8,048	0.43			
Cairo	9,9	0.05			
Evansville	9,104	0.49			
Fort Wayne	8,865	0.47			
Lafayette	5,730	0.31			
Terre Haute	8,012	0.43			
Columbus	22,707	1.21			
Dayton	14,845	0.79			
Sandusky	5,853	0.31			
Total.	142,388	7.61			

#### Distribution by States.

	Tons.	P. c. of total.
Wisconsin	128,448	6.86
Iowa	39,613	2.12
Missouri	164,375	8.78
Ark. Tex. La. and Ind. T.	1,081	0.41
Illinois	398,634	21.30
Indiana	88,072	4.74
Michigan	116,507	6.22
Ohio	409,789	21.57
South of Ohio River	63,049	3.37
Pennsylvania	292,175	15.01
West Virginia	28,415	1.52
New York state	60,471	3.55
Western Canada	25,383	1.36
California	48,369	2.59
Total.	1,871,480	100.00

#### An English Exhibition of Railroad Signaling Appliances.

Recent railway accidents which have exposed the defects of some of the existing methods of signaling have naturally made the appliances exhibited at the Palace Exhibition objects of much attention, and as nearly every really useful system is shown in working order (that is, when not disengaged by the carelessness of experimenters), the public have an opportunity, not often afforded, of becoming acquainted with the signaling arrangements commonly adopted on railways. Besides the standard systems, as they may be called, there are, however, several novelties which are more or less adapted to remedy defects which are inherent in or appertain to the well-known devices, and these we shall endeavor to describe as minutely as possible.

The London, Brighton & South Coast Railway Company exhibit the methods adopted on their line at various periods, including Saxy & Farmer's union of "lock" and "block," while the London & Southwestern show Preece's system in working order for a block section, with three signal-repeaters to indicate to the signalman in the boxes the position of the semaphore arms. Mr. Spagnolletti's arrangements as employed on the Great Western are also shown, and, as we have previously mentioned, Mr. C. V. Walker, the Electrical Engineer of the Southeastern, exhibits an unique and chronologically arranged collection of instruments used for signaling purposes. All of these are tolerably familiar to those interested in the subject, as they are fully described in the text-books: but in the exhibit of W. R. Sykes, shown in very large scale model, we have perhaps the most advanced and most perfect combination of the electric lock and block. This system has been in use for some years on the London, Chatham & Dover, and the Metropolitan District, and is probably as

near perfection as it is possible to go. It is shown as working between three signaling points, and those who are skeptical can try for themselves how far it is possible to break it down, and set signals so as to cause an "accident." The system is based on the mechanical union between the lock and block, and every signal given requires the attention of at least two signalmen. Thus, suppose we designate two signal-boxes as A and B. A cannot lower his semaphore until B releases his lever, and per contra, B cannot lower his semaphore for train in the opposite direction until A has released the lever by electrically removing pin from the stop in the lever. Suppose a train be approaching A's box, and traveling towards B's, A sends the call to B, and receiving "line clear," sends another signal which releases the lever in B's box, and enables the latter to pull off his signal, which he can put on again, but not "off" until he gives "line clear" a second time. Thus two trains cannot be in one block section at the same time, except by consent of two signalmen. Similarly, by combinations of electrical and mechanical arrangements, it is impossible to pass trains by signal while a siding is open for shunting, as the fact that the points are open for the siding effectively locks the main-line signals. On the other hand, points for sidings cannot be opened if a "line clear" signal has been given to a main-line train, until that train has passed out of the section. Thus, unless two signalmen at different boxes make the same blunder, it is impossible for an accident to occur, provided the drivers of the trains pay attention to the signals. It will be readily understood that such a system would have prevented the Canonbury "accident," which may be taken as an extreme case of railway blundering that would have been simply impossible if the signaling arrangements had been on the plan just described.

All the systems we have mentioned are, however, thrown out of use by dense fogs, and by occasional defects, and attempts have been made by enthusiastic inventors to persuade the railway companies to employ what may be termed automatic systems, not that they are really automatic, dispensing with the services of signalmen, but as complementary signals appealing more directly to the driver than the semaphores, for which it may be said he has to look out. Even in the case of fog, however, the Sykes system has been found to answer remarkably well, for the simple reason that a signalman cannot allow a train to leave until the signalman in advance has released the lever. Still, fogs are not unknown in London so dense that the driver cannot see even the post, let alone the semaphore, and in such cases fogs are employed—introducing yet another element of human fallibility. To provide for such conditions as these, several devices in the shape of electric gongs, working in connection with the signals, have been invented, and one of the simplest of these is Sullivan's electric fog and night signal, shown in a working model in the eastern gallery at the Palace. This arrangement is simple, not likely to get out of order, and certainly more trustworthy than the average fogman. It consists simply of a small bar placed parallel with the rail, and projecting slightly above its surface when the signal arm is "on" or at danger. The wheel of a passing engine depresses this bar, and rings a powerful gong in a box near the post; while, should the signal be "off," the bar is drawn below the level of the rail, and the gong is not sounded. The signal is entirely under the control of the signalman, and can be worked either electrically or mechanically in connection with or separate from the semaphore. It is, in fact, a type of a useful class of signals, which can be so arranged as to supplement the ordinary semaphores in clear weather, and to act as substitutes in the event of fog or dangerous arrangement of the apparatus.

The British & Irish Telephone Co. exhibits a working model of Redcliff's fog-signal, which differs so far from that just mentioned, that the "signal" itself is given on the engine. In this arrangement we have the usual magnet and armature, the latter carrying a projection, which rubs against a long lever carried alongside the engine, in a slot with the centers of the driving wheels. This lever actuates a small semaphore placed on a level with the driver's eyes, and also sounds the whistle, a crude idea, which does not commend itself by the finish of the model. Several better devices have been described in our back volumes, and so long ago as Feb. 5, 1875, we gave an account of Sir D. Salomon's system, which was so far complete in details as not only to call the driver's attention, but actually to shut off steam and apply the brake for him. That system necessitated a central insulated rail, which was so connected to the engine that on the latter entering a block section already occupied a bell would be rung, or, as before explained, the steam might be automatically shut off. A practically identical system was patented last year by a Mr. Putnam, of New York, and in the Concert-room Gallery, Messrs. Appel exhibit a nicely-finished working model of the system invented by Mr. T. T. Powell, of Harrogate. In this we have the insulated centre rail or wire in contact with the train by means of light wheels and rods, a couple of signal-boxes, and bells, etc. Levers at the side of the rails are depressed by the passage of the train and give notice in the signal-boxes, while tapper-keys on the engine and guard's van enable either driver or guard to communicate with the signalmen, and the latter can, of course, communicate with them. The model is sufficient to show that a railway worked on this system would form an electric circuit, or combination of circuits, by which not only would signalmen be able to communicate with trains approaching their boxes, but the manager could, by means of an indicator, locate the position of any train at any given time; further, platelayers could inform signalmen promptly of any defect in the road, and passengers could communicate with the driver or guard. The difficulty is the centre insulated rail, which would cost something, and the insulation, we are afraid, would be a source of trouble. In some respects, Mr. Powell's system is more complete than that of Sir D. Salomon's, for the latter breaks his centre-insulated rail into "block sections," but we do not think that either plan is likely to be adopted for some time. A really useful invention is shown in the eastern gallery, in the shape of King's patent electric railway signal, which is specially adapted for use on single lines in sparsely populated countries, or where the amount of traffic will not allow of a competent and ample staff of signalmen. In the model we have a single line with a branch to a siding and three posts, one of which contains a clock capable of indicating time up to 15 minutes, and a semaphore put "on" by mechanical means as the train passes over a lever treadle level with the rails. This semaphore is put to "off" by means of electricity when the train reaches the next post, where, at the same time, it puts the second signal at danger. The use of the clock is not quite apparent, for the inventor can scarcely expect his system to be adopted in crowded districts, but for certain purposes it will be employed in the following way: The clock, say, is at post A; a driver approaching and finding the signal "off" will see by the clock how many minutes have elapsed since the previous train passed into that block section, and as his engine passes the post it will, as explained above, put the semaphore at danger and the clock-hand back to zero. When the engine passes post B, it again runs over a treadle, which puts the semaphore at B to danger and clears the block section in the rear by lowering the semaphore at A, where the clock-hand again indicates the number of minutes since the

engine passed. Suppose post B guards the entrance to a siding, the engine which passes A and enters the block between A and B puts a special semaphore at danger at B by means of electricity, and thus gives warning that a train is approaching, and that the pointsman must be ready to clear or to pass into the siding, as the case may be, a lever at B working at signal C to indicate whether the branch or siding is clear. The arrangements are all under cover, and the treadles and other accessories are so arranged that the signals work at the same speed whether a fast or slow train passes; in fact, the details have been carefully worked out, and the system will no doubt find employment in America, Australia, and other places, as well as in large goods stations with long lengths of sidings. Another device worth notice is found in the southern gallery, where Dr. Garan shows a model of his method of communicating with the guard by making the electric connection through the buffers. On pulling the signal cord in any compartment an arm is thrown out from the side of the carriage and bell rung in the guard's van. It is obvious, however, that this method is not to be compared with others, as it depends for its efficiency on the fact of the buffers being in contact, and that is not always the case, except, perhaps, on some of the metropolitan lines. Altogether it may be said that, although some useful novelties are shown at the exhibition, so far as railway signaling is concerned, the established methods are the best.—*The English Mechanic, March 17.*

#### Report of the Connecticut Railroad Commission in Regard to Couplers for Freight Cars.

A bill for a public act providing that, "From and after July 1, 1881, every car owned or controlled by any railroad company located or operating a line or lines of railroad in this state shall be provided with coupling apparatus, the proper use of which does not require the presence of any person between the cars at the time of coupling, and which shall meet with the approbation of the railroad commissioners," was by the last General Assembly referred to us, "with instructions to report to the next session of the General Assembly upon the whole subject of car-coupling."

The range of inquiry opened by the resolution was illimitable, and there was no intimation of the intention of the Legislature as to the scope of the investigation; it is, indeed, doubtful whether there was any other intention than to effect a compromise between the friends of the bill and the adverse report of the Committee on Railroads, which had been presented. When we recall the fact that by far the largest proportion of employees injured in any one way are hurt in coupling freight cars, we are surprised that no invention has yet been generally adopted in place of the old pin and link. Of the employees injured on the New York Central and on the Erie in the past ten years 46 per cent. are stated to have been injured in coupling cars. On the Pennsylvania road during the five years 1875-1879, 34% per cent. The report of the Railroad Commissioner of Ohio gives the number for 1880 as 40 per cent. In our own state the proportion has been much less, having been for the five years preceding the present 25 per cent., and during the past year 31 per cent. The chief cause of the small proportion in Connecticut is undoubtedly that freight brakemen constitute much smaller part of the aggregate of employees than in the states referred to.

The fact, however, remains true here as elsewhere, that a larger number of employees are thus injured than in any other one way. It being evident, then, that the evil is sufficient to demand a remedy, the points which our report should cover would seem to be:

*First.*—Is an automatic coupler the remedy to be adopted?

*Second.*—Has any invention yet been so far perfected as to justify us in recommending legislation which shall make the adoption of an automatic coupler compulsory?

It will be said that answers to the first question, to be of any value, must be sought from practical railroad men, and not from inventors; that the patentees have already prejudged the case. But it is the demand which calls forth the inventions—the invention never creates the necessity. Hence the fact that thousands of patents have been issued in this country alone for car-coupling devices is in itself strong evidence of the necessity of improvement.

We are also well aware that in the opinion of many competent persons who have made the subject a study, it is beginning at the wrong end of the work of improvement to require the adoption of an automatic coupler. That the first step should be to bring about a uniform height of draw-bar and location and thickness of dead-blocks. That, in the language of the *Railroad Gazette*, the objection to the legislation proposed by the Massachusetts Commission, requiring the adoption of some automatic coupler, is, "that once such a law exists, its tendency will be to lead all railroad companies into an easy contentment with things as they are if they only conform to the requirements of the law." Admitting the "tendency," this does not seem a valid objection to the proposed legislation, providing the thing recommended would be an improvement, any more than the requirement of our statute of 1866, that railroad companies should provide their passenger, baggage, mail and express cars with a proper and suitable connecting apron, of the full width of the track, attached to the platform of the cars, so as to enable persons to pass from car to car with safety, led the companies to be content with that, and prevented their adopting the Miller platform, coupler and buffer. No better illustration, by the way, could be had of the fact that general laws most often spring from special causes than this act of 1866. The circumstances will be recalled by many. On Friday, the 18th of May, 1866, Henry E. Robbins, of Hartford, who had been in attendance before the Legislature at New Haven, in passing from the smoking-car to a passenger car, fell between them and was fatally injured, and upon the following Wednesday this bill was introduced in the state Senate.

Could a coupler be found which would do for freight cars, at a small expense, what the Miller coupler has accomplished for passenger cars, no one, we imagine, would be found to say it was not a proper remedy to be adopted for the evils now existing; and this brings us to the consideration of our second question, viz.: whether any invention has yet been so far perfected as to justify us in recommending legislation which shall make the adoption of an automatic coupler compulsory.

To aid us in coming to a correct conclusion it seemed proper to give patentees and others an opportunity to present and explain their inventions. A public investigation was therefore begun at our office, on the 29th of November last, continuing two days, with also sundry trials of different patterns in actual use upon the cars, which investigation has been supplemented by further examinations and by personal inquiries of railroad men, in various positions, in different parts of the state; and we may say here that the Board brought some practical knowledge and experience to the inquiry—one of their number having been a "practical railroad man" all his business life.

The *Hartford Courant*, which has been unflagging in its interest in this subject,

undertakers, who would naturally look with quiet disapproval on what goes to curtail their legitimate industry." The remark shows at once the public estimate of the extent of the evil, and the objections, both real and fanciful, to the application of the cure. We said in our last report that there was not much reason to hope for the voluntary adoption of automatic couplers for freight cars until the courts should hold companies liable for injuries received in the use of present couplings, on the ground of a failure to have their rolling stock in reasonably safe condition. The fact that the courts have not yet so held is not to be received as conclusive evidence that no such legal liability exists. Much less is it to be regarded as any evidence that a reasonable regard for human life does not demand these appliances. For, under the law as it now generally stands in this country, the court must necessarily apply the doctrine of contributory negligence, and the cases where such negligence does not exist in some degree are very rare. If the *Courant* is right as to the ground of opposition by the railroad companies, to wit, the expense, we may assume that if the expense is small the objection will be removed; and thus the question of the costs becomes an important one in our inquiry. *But the first cost must not be allowed necessarily to govern, even on this point; for it must be remembered that at present the cost for lost links and pins is enormous, amounting, in the case of the New York, Lake Erie & Western Railroad, it is said, to \$70,000 or \$80,000 a year; and a story would be told by others. This expense would, of course, be saved in the case of an automatic coupler with fast pin and link, or on dispensing altogether with both.*

It is not part of this report to indicate a preference for any particular invention, and, indeed, before doing so, a more critical comparison ought in justice to be had than yet has been made, but we have had in mind certain requirements which we regard as essential.

Such a coupler must of course not only couple automatically with one of its own kind, but it must admit of being coupled with the ordinary form of draw bars, without subjecting the brakeman to any increased danger, and if it permits such to be coupled with it, all the better. It is not necessary to enlarge upon this point; the truth is apparent to all, and covers the question of variation in height, for which it must be equally well adapted as the common form. *It must be simple enough not to be liable to get out of order, and so strong as not to be easily broken. And the cost complete must be inconsiderable above that of the ordinary draw-bar, pin, and link.*

Are there any such couplers? We think there are. The only remaining question then is, whether it is practicable or desirable for so small a state as Connecticut, with so few railroad corporations, to inaugurate compulsory legislation in this direction? We have been more perplexed over this question than any other connected with the subject. Our first inclination was to answer it in the negative, and were such legislation likely to result in any interference with the free interchange of cars, we should still feel obliged to oppose such action, although it might seem to be in the interest of humanity; but our views are correct on the other points, we do not see how any trouble can come in this direction. We, therefore, see no sufficient reason why the work should not be begun here. Legislation of this character is no new departure for Connecticut, only heretofore it has been directed more toward the safety of the passenger than of the employé. *That the Massachusetts Commissioners came to a like conclusion after examination, strengthens us in our position. Still more does the fact that the Special Committee of the Legislative Assembly of the Province of Ontario, after a most exhaustive inquiry as set forth in their report, which with the evidence embraces over eighty pages, says: "Your committee examined a large number of automatic and other couplers for freight cars, some of which appeared well fitted for the purpose of coupling, and would go far to do away with the necessity of the men going so frequently between the cars. The committee would therefore suggest whether, in view of the great loss of life and injury to brakemen in coupling cars, it is not desirable that the automatic couplers should be made compulsory upon Canadian railway companies." The legislation should not, however, be so radical as that proposed in the bill referred to us. That bill provided that within a very limited time every car owned or controlled by any of our companies, should be equipped with such coupling apparatus as would not require a person between the cars at the time of coupling. We would confine the requirements to new cars, and to the necessary renewals of old, but would add to it, that we do not think would be objected to, that the draw-bars should be placed at a uniform height, and that the dead-blocks should be so thick as to give, at least, a foot clear space between the cars when the dead-blocks were together.*

We should also be glad could we secure a uniform system of dead-blocks, which, in our judgment, should be the single block over the draw-bar, as we regard the double block, in the language of a witness before us, "good perhaps for the car, but death to the brakeman." This point is not, however, material in this report, as the Connecticut practice is uniformly to use the single block.

We would therefore recommend the enactment of a law requiring that all freight cars hereafter bought or built by the corporations operating railroads in this state, shall be equipped with automatic couplers, the draw-bars of which shall be at the uniform height which has been recommended by the master car-builders, and with dead-blocks sufficiently thick to give not less than one foot clear space between the cars, when the blocks come together, and that similar draw-bars and couplers should be made use of in all renewals. If it is objected that this is a half-way measure, we answer, that is just what it is intended to be.

To require our companies to substitute, at once, automatic couplers for those now in use on their more than eight thousand freight cars would, in our judgment, be imposing an unreasonable burden of expense. If it is thought best to provide additional protection in the use of old cars, there may be adopted some such device as was shown us for a bar pivoted on a revolving collar, to be attached to the end of a car, and long enough to reach from the side of the car under the draw-bar to raise and direct the link without taking hold of it with the hand, or in other words to be a substitute for the "stick" always in place and ready for use.

All of which is respectfully submitted.

GEORGE M. WOODRUFF,  
JOHN W. BACON,  
WILLIAM H. HAYWARD,  
Railroad Commissioners.

HARTFORD, Dec. 29, 1881.

#### A New Steel Rail Crossing.

Mr. P. J. Cochrane, master of machinery of the South Carolina Railway, has patented a steel rail crossing with cast iron or steel chairs, which can be made to suit any angle of crossing. The chairs are a novel pattern, constructed to support the head of the rails as well as to hold the main and guard rails firmly against all strains without rivets. It is free from joints, except at the intersection of the rails, and is easily taken up for repairs or changing rails. One in use seven months at the most frequently used crossing of the road has proven very satisfactory. A collision of trains upon it did not injure it in the least.—*National Car-Builder.*

NAME OF ROAD.	MILEAGE.						EARNINGS.				EARNINGS PER MILE.							
	1882.		1881.		Inc.	Dec.	P.c.	1882.	1881.	Increase.	Decrease.	P. c.	1882.	1881.	Inc.	Dec.	P. c.	
								\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
Ala. St. Southern	290	290						57,541	63,545		6,004	9.4	198	219		21	9.4	
Buffalo, Pitts. & West	170	170						48,515	40,024	8,481		21.2	283	295	50		21.2	
Bur., Ced. Rap. & No.	620	564	56	9.0				225,631	124,510	101,111	7,854	80.8	364	221	143	64.7		
Cairo & St. Louis	146	146						23,797	31,651			24.8	17.0	595	561	34	24.8	
Central Pacific	2,86	2,590	270	10.4				1,702,000	1,454,218	247,782		11.8	6.6	565	61		10.8	
Ches. & Ohio	442	435	7	1.7				208,709	184,000	25,400		14.2	479	424	52		12.3	
Chicago & Alton	847	840	7	0.8				53,480	474,318	56,162		11.8	6.6	565	61		10.8	
Chi. & Eastern Ill.	232	220	12	5.5				124,624	117,119	7,505		6.4	537	732	5		9.9	
Chi. & Gd. Trk.	315	335						105,560	70,362	35,198		50.3	315	210	105		50.3	
Chi. Mil. & St. Paul	4,140	3,800	340	8.9				1,77,000	682,717	942,28	101.6	333	180	153			85.0	
Chi. & Northw. tern	3,280	2,800	480	17.1				1,471,945	963,205	508,740	52.8	449	344	105			30.5	
Chi. St. P. M. & O.	1,003	940	63	6.7				315,037	18,504	156,443	98.4	314	169	145			85.8	
Chi., Ham. & Dayton	345	345						199,185	174,449	24,745		12.2	577	506	71		14.2	
Chi., Ind. St. L. & Chi.	300	300						186,879	171,511	15,368		8.9	6.3	572	51		8.9	
Chi., N. O. & T. Pac.	36	33						174,177	138,310	35,867		20.0	518	412	103		20.0	
Cleve. Akron & ol.	144	144						32,999	29,551	3,448		11.6	220	205	24		11.6	
Cot., H. V. & Toledo	3 0	32						164,102	152,358	11,834		7.8	513	476	37		7.8	
Denver & R. G.	1,062	551	511	92.0				412,987	317,682	9,305		30.0	389	577		188		2.6
Des Moines & Ft. Dodge	84	84						22,170	12,593	9,583		7.9	204	160	104		6.0	
Det., Lan. & No.	226	2 6						115,436	75,217	40,219		17.0	511	333	178		13.6	
Ea.-tern.	284	282	2	0.7				206,218	192,165	14,053		7.3	723	681	45		6.6	
Evansv. & T. Haute	121	115	6	5.2				7,674				25.7	469	393	76		19.2	
Flint & Ferre Mar.	350	318	32	10.1				163,21	119,883	43,338		30.1	463	37	89		23.4	
Hannibal & St. Jo.	292	292						154,702	122,875	31,827		5.3	421	109			25.9	
Houston, E. & W. Tex	103	84	19	22.6				15,290	6,563	8,727		132.2	149	78	71		31.0	
Ind. Cen., Ill. lines	918	918						535,145	443,679	91,466		2.6	583	483	100		20.6	
Ind. Bloom. & West	402	402						154,242	80,820	73,422		90.6	384	201	183		9.6	
K. C. Ft. S. & G.	320	305	13	4.9				173,755	165,326	10,429		6.3	317	298	19		6.3	
K. C. L. & So. Kan.	390	390						119,557	77,026	41,931		53.6	374	234	120		47.9	
Lake Erie & Western	386	386						98,401	88,485	9,916		12.3	238	226	27		11.3	
Long Island	335	320	15	4.7				111,780	100,05	11,775		11.8	334	313	27		9.9	
Louisville & Nash.	2,060	1,840	22	11.9				96,036	90,124	5,092		19.2	475	438	37		8.4	
Marq. H. & Ont.	88	88						22,800	14,035	8,765		62.6	259	154	105		62.6	
Mil., L. S. & West.	280	250	30	12.0				63,953	30,331	35,622		117.5	230	128	108		84.4	
Minn. & St. Louis	360	225	133	63.0				114,906	38,207	76,609		201.6	317	170	147		86.5	
Mo. Pacific lines																		
Central Branch	363	300	63	21.0				61,433	52,932	11,501	21.7	177	176	1			0.6	
Int. & Gt. Northern	775	623	152	24.4				186,988	200,814		23.126	11.0	241	337		96	24.5	
Mo., Kan. & Tex.	1,190	880	310	35.2				394,671	337,564	57,107	17.0	340	384	44	11.4			
Mo. Pacific	785	700	85	12.1				469,042	394,413	73,623	18.8	563	505	32		6.0		
Texas & Pacific	1,140	800	340	42.5				253,642	206,781	46,860	10.1	251	180	71			6.0	
Mobile & Ohio	5 8	506	22	4.3				216,767	212,575	4,200	14.0	310	150	151			19.1	
Nash., Chatta. & St. L.	467	467						159,961	190,866	31,905		1,182	1,033	79			7.2	
N. Y. & N. England	336	316	80	25.3				213,790	173,615	40,176		16.6	452	387	65		16.6	
Norfolk & Western	428	428						65,021	62,070	2,951		12.3	431	21</				



Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

## EDITORIAL ANNOUNCEMENTS.

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**Addresses.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed to the EDITOR RAILROAD GAZETTE.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

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## WESTERN TRAFFIC CENTRES.

In our issue of March 17 we made some comments on the "Origin and Destination of Trunk Line Freight," based on two tables in Mr. Fink's admirable "Report upon the Adjustment of Railroad Transportation Rates to the Seaboard," then just published. The figures given in these tables are so significant, however, that we return to them, and illustrate them by diagrams which will make more clear the relative importance and insignificance of the various cities and districts west of the termini of the trunk lines, as indicated by the amount of freight they severally ship to these lines and receive from their eastern termini—from New York, Philadelphia, Baltimore, Boston and the group of New England towns which are classed with Boston and have the same tariff rates as that city (Lowell, Nashua, Worcester, Springfield, Providence, South Framingham, Northampton, Holyoke, Westfield, Salem and Fitchburg). On another page we copy the tables given in the report, in which the peculiar classification of the different towns and groups of towns has a significance of its own, which we need not explain.

The tables give the traffic for 1880, and not for last year. The year 1880 is the only one during which the rates in both directions were generally well maintained throughout by all the lines, and it was a year of very large traffic—larger in the aggregate than had ever been known before, though Chicago shipments were a little larger in 1879, when rail rates were much of the time much lower.

In 1881, with more than six months of railroad war and extremely low rates, the aggregate east-bound movement was probably not very different from that of 1880, the Chicago shipments being much larger, but those of the places further south generally smaller. The west-bound shipments in 1881 were much larger than in 1880.

The figures for 1880 were not only made with rates maintained, but by agreement they are to be taken as the basis "generally" for the division of east-bound traffic among the trunk lines. As the tables do not give the amounts carried by the different roads, it helps us to judge of the coming apportionment only by the knowledge it gives us of the quantities of freight supplied at places where one or another of the trunk lines is known to command much or little of the traffic. For instance, under the old pool the two Vanderbilt roads received 49 per cent. of the Chicago shipments, and most of that we know they deliver to the New York Central. The tables show us that 49 per cent. of the Chicago shipments in 1880 was 741,853 tons. So the Pittsburgh receipts and shipments

are divided chiefly between the Pennsylvania and the Baltimore & Ohio, etc.

In our diagrams we have placed the receipts of each city or state from the East opposite its shipments to the East, to enable us to compare the movement of freight in the two directions. We desire here, however, to call attention to the fact that the difference between the two currents is exaggerated by the figures. The statement of west-bound freight is made to include the traffic which the trunk lines compete for; the statement of east-bound freight includes what the Western roads compete for. The latter compete for all the east-bound traffic that reaches the western termini at the trunk lines, and the east-bound shipments in the table include not only the traffic that goes to the seaboard, and so passes over the whole length of a trunk line, but all that received from any station west of its western terminus, or at that termini, and carried by it to any station on its line. Thus shipments from the west to Lockport, Rochester, Syracuse, Elmira, Harrisburgh, Scranton and Washington are included in the above table. But west-bound traffic originating at interior stations on the trunk lines (with the exception of the "New England points" named) is not included in the table of west-bound freight, and in the aggregate the shipments of these interior points in New York and Pennsylvania, where there are important manufactures, to the West are very large, and would add materially to the 1,871,480 tons given in the table as the total west-bound freight. Indeed, statistics that have been collected for the shipments through Buffalo make it probable that these shipments from interior trunk-line points, including Pittsburgh as well as Buffalo, are as much as 1,500,000 tons. These shipments from interior trunk-line stations are competitive for the roads west of the trunk lines, but not usually for the trunk lines themselves.

On the other hand, the table for east-bound freight does not include what was carried by the Grand Trunk, while the table for west-bound freight does include nearly all that carried west by this road—all except that which it took from New York via New London, etc., at special rates, which was not a large amount.

The difference in the aggregate figures caused by this omission cannot be very large, however. We believe that the Grand Trunk (that is, the line east of Toronto, which is regarded as the western terminus of the Grand Trunk as a trunk line) of late has not had much more than 7 per cent. of the total east-bound freight; and this would not make any great changes in the lengths of the lines in our diagrams. As it gets its freight chiefly at Chicago, Milwaukee and Detroit, if included it would probably increase the traffic of these cities chiefly. On the whole, the east-bound traffic is much more completely shown than the west-bound.

We have arranged the places and states in the order of their shipments of freight to the East, beginning at the bottom with Chicago, the place with the largest shipments, and placing the towns in the order of their shipments first, and above them the shipments of unnamed stations in the several states, the latter being freight non-competitive for the Western roads, but competitive for the trunk lines. We do this to facilitate comparison of the cities, the true traffic centres, for whose traffic the roads are able to compete, and for whose traffic, too, new roads are built.

We see here that Chicago far exceeds any other city in rail shipments eastward. Buffalo ships about two-thirds as much, but by far the larger part of the shipments of Buffalo consist of freight brought thither by lake from Chicago, Milwaukee, or some other lake port, and chiefly from Chicago. Leaving Buffalo, Peoria and Toledo come next, each with little more than a quarter of Chicago's shipments, St. Louis with less than a quarter, the other four Mississippi River points together with nearly the same as St. Louis, then Indianapolis, Milwaukee and Pittsburgh, each with less than a fifth of the Chicago shipments, Cleveland with a seventh, Cincinnati with a tenth, Detroit with an eleventh, and no other place with so much as one-twentieth of the Chicago shipments.

We must guard against looking upon these shipments as in all cases representing the total eastward rail shipments of the places named. As before noted, they include only shipments billed through to points east of the western termini of the trunk lines. Shipments to Buffalo or Pittsburgh, for instance, are not included. But it may be said in general that the shipments from the Western towns that go only to Buffalo or Pittsburgh or points still farther west are inconsequential, with the exception of those to the lake ports and St. Louis. That is, by far the larger portion of the freight shipped from the West is consumed in the East, or is exported; if sent by rail to the East, it is more economical to bill it through, and not have it

transferred or re-billed at any intermediate station. But if forwarded by lake, it will not appear in the tables here given, though it may come from some of the towns in the list. For instance, grain shipped by Kansas City and other Missouri River points is very likely to be consigned to Chicago or St. Louis only. In such cases it does not appear in the shipments of Missouri River points given in the table. If it is forwarded from St. Louis by river, of course it does not appear at all, never touching a trunk line. If forwarded by lake to Buffalo, it will appear in the Buffalo shipments of the table, if it goes east by rail; but it will not appear at all if forwarded by canal. If forwarded from Chicago or St. Louis by rail to a point east of Buffalo or Pittsburgh, it will appear in the Chicago or St. Louis shipments of the table. Now, doubtless, most of the grain shipments of Missouri River points, of all interior points west of the Mississippi River and of Wisconsin, and much of the grain shipments of Mississippi River points and of the interior of Illinois are consigned to Chicago, Milwaukee, or St. Louis, and the total eastward shipments of these places and states are thus doubtless much more than their shipments through to the trunk lines, given in the table. But as we go east, this is less and less the case, because the farther east we go the less the advantage of shipping by way of a lake port. In Michigan and in Northern Indiana and Ohio considerable grain shipments are consigned to Detroit, Toledo and Cleveland; but, owing to the short distance from these ports to Buffalo, this grain is more likely to be forwarded from these places by rail than by lake, so that the most of it doubtless appears in the Detroit, Toledo and Cleveland shipments of the table. From such places as Indianapolis and towns further east and south substantially all the traffic must go all the way east by rail.

We may thus understand why it is that the four "Missouri River points," whose traffic has grown up into great importance within the past twelve years, are credited with shipping but 78,468 tons of freight in 1880—only 251 tons per working day, which will not fully load a small freight train. They shipped several times as much to Chicago, doubtless; but the 251 tons a day represents what the trunk lines had to compete for at the Missouri River points. For them the other traffic thence was first accessible at Chicago, St. Louis or Toledo.

There are large shipments eastward from Buffalo and Pittsburgh, but from no other of the western termini of the trunk lines. Salamanca, Dunkirk, Wheeling, Parkersburg and Bellaire together shipped but 72,664 tons. The large Buffalo shipments are due almost entirely, doubtless, to its lake receipts (of lumber as well as grain); the large Pittsburgh shipments probably consist chiefly of the heavy manufactures of that place, as it has no considerable trade in Western produce.

We will now turn to the shipments westward represented on the right-hand side of our diagram. The comparative shortness of these lines strikes the eye at once. The figures show 500 tons of freight shipped east to every 100 shipped west. We have shown above that this exaggerates the actual great difference in the two currents of traffic. In the diagram of west-bound traffic two lines project far beyond all others; these represent the shipments to Chicago and to Pittsburgh. Doubtless it will be news to many that Pittsburgh, almost unknown as a distributing point of merchandise, receives from the East more tons of freight than Cincinnati and St. Louis together, and about the same as Cleveland, Toledo, Detroit and Indianapolis together. The explanation doubtless is that Pittsburgh is a great consumer of coarse raw materials used in iron and glass manufacture, and that in 1880 we drained the world of scrap iron, etc., which largely went to Pittsburgh to be manufactured. The Pittsburgh receipts have not an importance to the railroads in proportion to their weight, because they consist chiefly of those articles for which the lowest rates are received, and this is largely true of its shipments also. But it is unquestionably one of the great traffic centres of the country, and almost the only great interior one whose freight is not composed chiefly of agricultural products. Taking its receipts and shipments together (534,053 tons), only Chicago and Buffalo surpass it, and it has this peculiarity, that its receipts from the East are very nearly equal to its shipments to the West, while at Buffalo the shipments are 18 to 10, at Chicago 4 to 1, at Milwaukee 6 to 1, etc.

Receipts from the East in most cases indicate the importance of the several Western towns as distributors of Eastern merchandise—their general rank as wholesale markets. They get their merchandise mostly in the East—at least cities east of the Mississippi do. The towns on the Mississippi and the Missouri, however, must either get a large share of the goods they wholesale at Chicago and St. Louis, or their wholesale

DIAGRAM I.

TRUNK LINE FREIGHT TO AND FROM WESTERN CITIES AND STATES OUTSIDE OF CITIES.

East to trunk lines.

States outside of cities:	Tons.
West Virginia	2,93
California	22,845
Missouri	38,377
New York State	43,013
Arkansas, Tex., La. and I. Territory	49,890
Unknown	49,937
West Pennsylvania	107,229
Western Canada	157,649
S. of Ohio River	168,346
Iowa	266,246
Wisconsin and Northwestern	320,806
Michigan	300,113
Indiana	316,616
Illinois	300,741
Ohio	1,395,631
Cities:	
Other towns*	22,803
Parkersburg	0,270
Hamilton	10,806
Toronto	16,349
Columbus	18,128
Salamanca	18,246
Dunkirk	19,348
Wheeling	25,700
LaFayette	27,117
Sandusky	29,798
Terre Haute	32,012
Vincennes	32,623
Fort Wayne	33,507
Erie	46,786
Dayton	48,496
Evansville	61,880
Louisville	73,468
Missouri River points \$	78,532
Detroit	140,724
Cincinnati	152,756
Cleveland	214,620
Pittsburgh	274,231
Milwaukee	278,800
Indianapolis	2,5460
Mississippi River points §	326,736
St. Louis	337,795
Toledo	388,778
Peoria	390,148
Buffalo	1,031,792
Chicago	1,513,986
Total	10,488,246

West from seaboard.

States outside of cities:	Tons.
West Virginia	1,247
California	48,369
Missouri	4,511
New York State	8,684
Arkansas, Tex., La. and I. Territory	7,681
Pennsylvania	31,453
Western Canada	25,383
S. of Ohio River	25,979
Iowa	29,045
Wisconsin and Northwestern	83,149
Michigan	41,552
Indiana	26,006
Illinois	28,324
Ohio	128,954
Cities:	
Other towns†	12,710
Parkersburg	...
Columbus	22,707
Wheeling	22,576
LaFayette	5,730
Sandusky	5,853
Terre Haute	8,012
Fort Wayne	8,865
Dayton	14,845
Evansville	9,104
Louisville	37,069
Missouri River points \$	37,629
Detroit	74,056
Cincinnati	118,768
Cleveland	82,288
Pittsburgh	260,722
Milwaukee	45,290
Indianapolis	30,955
Mississippi River points §	16,927
St. Louis	115,776
Toledo	30,374
Peoria	11,012
Buffalo	57,567
Chicago	346,582
Total	1,871,480

East to trunk lines.

West from seaboard.

\* Cairo 8,529  
 Bloomington 5,016  
 Bellaire 4,757  
 Springfield 4,500  
 † Kansas City, Leavenworth, Atchison and St. Joseph.  
 § Burlington, Keokuk, Quincy and Hannibal.

† Springfield, Illinois 8,048  
 Bloomington, Illinois 3,730  
 Cairo, Illinois 929

DIAGRAM II.

TRUNK LINE FREIGHT TO AND FROM WESTERN STATES.

(States include the cities in them.)

East to trunk lines.	West from seaboard.
Tons.	Tons.
California 22,845	48,369 California.
West Virginia 37,063	28,415 W. Virginia.
Ark., Tex., La. and Indian Territory 49,890	7,631 Ark., Tex., La. & Ind. T.
Unknown 49,937	
Western Canada 184,804	25,383 W. Canada.
S. of Ohio River 211,814	63,048 S. of Ohio Riv.
West Pennsylvania 428,246	202,175 Pennsylvania.
Iowa 502,335	39,613 Iowa.
Michigan 533,437	116,507 Michigan.
Missouri 545,331	164,275 Missouri.
Wiscons'n. 599,605	128,448 Wiscons'n.
New York 1,112,399	66,471 New York.
Indiana 1,169,620	88,672 Indiana.
Ohio 2,182,062	403,780 Ohio.
Illinois 2,821,020	398,634 Illinois.
Total 10,488,246	1,871,480 Total.

trade is much less important than it is generally supposed to be. The direct shipments of 37,629 tons of freight from the seaboard to Missouri River points in 1880, and of 16,927 tons to Mississippi River points other than St. Louis do not indicate any important trade at those points. Indeed, the total shipments from the seaboard and New England points to places on and west of the Mississippi (except at St. Louis), together with those to Wisconsin outside of Milwaukee, were only 178,942 tons in 1880.

The relative rank of the Western towns as receivers of freight is often much different from their rank as shippers of freight to the West. Thus the ten places

with the largest percentages of the total in the two directions are:

East from—	Per cent. of total.	West to—	Per cent. of total.
1. Chicago	14.43	1. Chicago	2
2. Buffalo	9.83	2. Pittsburgh	13.93
3. Peoria	3.72	3. Cincinnati	6.35
4. Toledo	3.71	4. St. Louis	6.18
5. St. Louis	3.22	5. Cleveland	4.40
6. Indianapolis	2.72	6. Detroit	4.01
7. Milwaukee	2.66	7. Buffalo	3.08
8. Pittsburgh	2.62	8. Milwaukee	2.42
9. Cleveland	2.14	9. Louisvill	1.98
10. Cincinnati	1.46	10. Indianapolis	1.65

Chicago stands first in both receipts and shipments, but Buffalo, which is second in shipments, is seventh in receipts, and no place but Chicago has the same relative rank as a receiver and shipper of trunk-line

freight. It is noticeable that in most cases the town's percentage of the total shipments from the East is greater than its percentage of total shipments to the East. This is because the business of distributing merchandise is more concentrated than that of collecting and forwarding Western farm products. The six principal receivers received 53.89 per cent. of all the freight shipped from the seaboard to the West; the six principal shippers shipped but 37.63 per cent. of the total rail shipments from the West to the East. The difference here is exaggerated, however, by the fact that there are large shipments by lake from several cities, but only small receipts by lake.

Not the least value of statistics of this kind is the information they give of the insignificance of the traffic of certain places, for which there is great competition. Two or three years ago a number of Western roads urged the trunk lines to join in a railroad war between them and the Wabash over the traffic of the "Missouri River points." To have done this would have resulted in reducing rates about one half on a traffic of 12,360,000 tons of freight a year in a quarrel affecting 118,000 tons a year. The reduction on the other traffic would probably be as much in one week as the total trunk line earnings from Missouri River traffic in a whole year. Again, some three years ago, Mr. Gould and his associates were said to be bending all their energies towards securing a line of their own from Toledo to New York, in order to secure the immense profits of the Pacific traffic commanded by their (then) Union Pacific Railroad. The total California freight in 1880 reaching the trunk lines was 48,369 tons west and 22,845 tons east—about equal to the business of the single town of Evansville, Ind., to one quarter that of Cleveland, to less than one fifth that of Peoria, to one seventh that of Pittsburgh, and to one fifteenth that of Buffalo. The rail freight received by the trunk lines from Chicago every five days was more than that received from California in the whole year. Only one ton out of 459 of their receipts were from California, while one out of 384 of their shipments were to California. The traffic is certainly worth something, but it is comparatively a small business.

Four grand divisions include nearly all the territory of this traffic. These and the percentages of their traffic in the two directions were:

	East-bound.	West-bound.
West of Mississippi	10.69	13.90
Illinois and Wisconsin	32.63	28.16
Indiana, Ohio and Michigan	37.10	32.53
East of Ohio	15.03	20.68
Total	95.45	95.27

Western Canada and the country south of the Ohio River have the remainder.

It seems from this that the great source of traffic for the trunk lines is east of the Mississippi River, and that five of the states between Pennsylvania and the Mississippi had 69 $\frac{1}{2}$  per cent. of the east-bound and 60 $\frac{1}{2}$  of the west-bound freight.

Many other interesting and important facts may be learned by examining the table and the diagrams, which seem to us of very great importance as indicating the true relative importance of the Western traffic centres.

#### FEBRUARY EARNINGS.

Our table of railroad earnings in February has reports from no less than 68 railroads—the largest number that ever reported. These worked 46,214 miles of road this year, or about 46 per cent. of the total in the United States, which was 5,297 miles, or 12.9 per cent., more than they worked in February last year. Their aggregate earnings were \$22,586,660, or 28.1 per cent. more than last year, and their average earnings per mile increased from \$448 to \$489, or 9.2 per cent. Of the 68 roads reporting only 12 have a decrease in total earnings, and 15 a decrease in earnings per mile. Very large increases in earnings per mile are shown by several roads, as 64.7 on the Burlington, Cedar Rapids & Northern, 50.3 on the Chicago & Grand Trunk, 85 on the Chicago, Milwaukee & St. Paul, 85.8 on the Chicago, St. Paul, Minneapolis & Omaha, 65 on the Des Moines & Fort Dodge, 58.6 on the Detroit, Lansing & Northern, 91 on the Houston, East & West Texas, 90.6 on the Iowa lines of the Illinois Central, 47.9 on the Kansas City, Fort Scott & Gulf, 72.4 on the Kansas City, Lawrence & Southern Kansas, 62.6 on the Marquette, Houghton & Ontonagon, 78.1 on the Milwaukee, Lake Shore & Western, 86.5 on the Minneapolis & St. Louis, 62.4 on the Northern Pacific, 112.9 on the St. Paul, Minneapolis & Manitoba, and 54.5 on the Wisconsin Central. The explanation of these enormous increases is the prevalence of snow blockades last winter, by which 18 of the 18 roads named above suffered greatly then. This is well shown by the comparison made last year with 1880, showing large decreases for most of these roads which have large increases this year. Thus the roads named below had earnings per mile in 1881 smaller than in 1880, and in 1882 larger than in 1881 by the amounts named:

Earnings per mile.		
Less in 1881 than in 1880.	More in 1882 than in 1881.	in 1880.
Burlington, Cedar Rapids & Northern	\$192	\$142
Chicago, Milwaukee & St. Paul	152	13
Chicago & Northwestern	148	105
Chicago, St. Paul, Missouri & Omaha	68	145
Des Moines & Fort Dodge	50	104
Illinois Central in Illinois	99	100
in Iowa	137	183
Milwaukee, Lake Shore & Western	34	108
Minneapolis & St. Louis	125	147

It is here seen that in many cases the gain this year only about makes up for the loss last year. We must

bear in mind this, in order to prevent an exaggerated idea of the earnings this year. Our table (46 roads) last year showed a decrease of 10.1 per cent. in earnings per mile in 1881 compared with 1880, while the 52 roads reporting for February the previous year showed an increase of 12.5 per cent. from 1879 to 1880.

The roads that have a decrease in earnings this year are nearly all Southern, which were exceptionally prosperous a year ago, and are now suffering from the effects of the light crops; the Mobile & Ohio and the Southern lines west of the Mississippi make an especially bad showing, the decreases in earnings per mile being 31.8 per cent. on the Texas & Pacific, 30.1 on the Mobile & Ohio, and 28.5 on the International & Great Northern. Both the roads connecting Texas with the North show large decreases. Of Southern lines further east the Louisville & Nashville shows a considerable increase, the Cincinnati, New Orleans & Texas Pacific (Cincinnati Southern) a very large increase (26 per cent.), the Alabama Great Southern and the Nashville, Chattanooga & St. Louis large decreases, the South Carolina and the Norfolk & Western trifling decreases, the little Petersburg Railroad a large increase, and the Chesapeake & Ohio a considerable increase.

Few Eastern roads report, but the Pennsylvania and the Northern Central give us our best clew to the condition of trunk-line traffic, the Philadelphia & Reading reflects the anthracite coal traffic very well; the Eastern and the New York & New England represent New England.

To show how far the roads reporting represent the different parts of the country, we may add that 23,930 miles—nearly half of the total reporting—were west of the Mississippi, where the total mileage in operation is but about 37,500 miles; 18,608 miles were in the states east of the Mississippi, north of the Ohio and west of Pennsylvania, where there are about 27,000 miles of road; only 4,260 were in the states west of Ohio and north of the Potomac—the most thickly peopled part of the country—where there are nearly 22,000 miles of railroad; and 4,416 were south of the Potomac and the Ohio, east of the Mississippi, in a district which has about 16,000 miles of road. We see by this that it is the trans-Mississippi roads that are best represented in the table: 64 per cent. of their mileage reported their earnings for February; of the lines in the prosperous states north of the Ohio, about 50 per cent. reported; of the Southern lines east of the Mississippi, 27 $\frac{1}{2}$  per cent.; and of the Eastern lines, including the roads with heaviest traffic and largest earnings per mile, only 19 $\frac{1}{2}$  per cent. Generally, we may say, the further east we go, the less complete are the reports of railroad earnings. We may even divide our Eastern district, and then find that only 11 $\frac{1}{2}$  per cent. of the New England railroads report their earnings; and only six per cent. of the New York roads; while the New York roads that do report have so little connection with the system of the state as to have little or no significance as indications of the general course of traffic.

The roads with the largest and smallest earnings per mile this year in February were:

Largest:		Smallest:	
Pennsylvania	\$1,718	Houston, E. & W. Tex.	\$149
Reading	1,298	Cairo & St. Louis	163
Northern Central	1,268	K. C. Lawrence & S. K.	171
Eastern	926	Toledo, Del. & Burl.	175
Iron Mountain	696	Cen. Branch Union Pac.	177
Chicago & Alton	626	Northern Pacific	177
Cin. Ind. St. L. & Chi.	623	Ala. Great South	198
Missouri Pacific	597	Ohio Central	224
Central Pacific	595	Texas & Pacific	224
Ill. Cen. in Ill.	583	Peoria, Dec. & Ev.	228
Ind. Ham. & Dayton	577	Cleve., Akron & Co.	229
N. Y. & New England	540	Mil. Lake Shore & W.	236

The following table gives the earnings per mile in February of the several roads for six consecutive years, so far as they have been reported:

February Earnings per Mile—1877 to 1882.						
	1877.	1878.	1879.	1880.	1881.	1882.
Ala. Gt. South	\$1,718	\$1,777	\$219	\$198		
Burl. C. R. & N. O.	\$357	\$224	333	221	364	
Cairo & St. Louis	154	93	112	173	217	163
Central Pacific	536	470	491	455	501	505
Chicago & Alton	480	443	454	502	505	226
Chicago & E. Ill.	359	390	380	524	532	537
Chi., Mil. & St. P.	296	472	276	339	180	333
Chi., N. W. & O.	522	413	405	344	449	
Chi., St. P., M. & Om.		250	237	169	314	
Cin. Ham. & Dayton	489	462	440	546	506	577
Cin., Ind. St. L. & Chi.	499	489	472	601	572	623
Clev., Akron & Col.	161	173	156	220	205	229
Denver & R. G.	149	181		381	577	389
Des Moines & Ft. D.			141	246	160	264
Det., Lansing & N.			202		333	511
Eastern	637	572	548		681	726
Flint & Port M.		276	400	377	466	
Hannibal & St. Jo.	527	435	460	572	421	530
Ill. Cen., in Ill.	565	432	558	483	583	
Ill. Cen., in Iowa	249	327	245	315	201	384
Ind., Bloom. & W.	272	425	391	423	298	317
Int. & Gt. N.	264	217	285	266	337	241
K. C. Lawrence & So. K.	195	172	159		99	171
Lake Erie & W.			191	228	228	255
Louisville & Nash.	448	431	443	519	438	475
Mil. L. S. & W.		128	123	162	128	236
Minn. & St. Louis			229	305	170	317
Mo., Kan. & Tex.	299	231	248	417	384	340
Mobile & Ohio	331	358	337	403	428	299
Nash., Chat. & St. L.	426	441	453	41	409	342
N. Y. & New Eng.			474	549	540	
Norfolk & West.	323	276	284	379	359	350
Northern Central	888	693	839	1,015	1,174	1,268
Northern Pacific		1,281	1,211	1,421	1,573	1,628
Pennsylvania				120	109	177
Peoria, Dec. & Ev.				171	196	228

	1877.	1878.	1879.	1880.	1881.	1882.
Phila. & Reading	842	603	1,026	1,172	1,344	1,298
St. L. A. & T. H., Main Line						
Bellefontaine Line	518	495	692	716	618	696
St. L. Iron Mt. & S.	515	490	496	502	381	371
St. L. & San Fran.	331	253	262	381	301	371
St. P. Min. & Man.					210	216
Scioto Valley					206	226
South Carolina	399	388	383	473	539	522
Texas & Pacific	434	395	410	404	396	324
Wabash, St. L. & P.					489	408

The numbers of roads that had smaller earnings per mile in February this year than in previous years were:

15 out of 46, smaller than in 1881.

17 out of 48, smaller than in 1880.

8 out of 39, smaller than in 1879.

7 out of 32, smaller than in 1878.

7 out of 31, smaller than in 1877.

This year, when 31 out of 46 roads had larger earnings than in February last year, makes a great contrast with last year, when only 17 out of 48 had larger earnings than in 1880.

Of the 26 roads whose February earnings per mile are given for all six of the years, the following had larger ones this year than in any other:

Burlington, Cedar Rapids & Northern.

Central Pacific.

Chicago & Alton.

Chicago & Eastern Illinois.

Cincinnati, Hamilton & Dayton.

Cincinnati, Indianapolis, St. Louis & Chicago.

Cleveland, Akron & Columbus.

Illinois Central, in Illinois.

Illinois Central, in Iowa.

Northern Central.

Pennsylvania.

There are eleven of these roads, and several of them are very important ones.

On the other hand, the following had smaller earnings per mile last February than in the corresponding month of any of the five years previous:

Mobile & Ohio.

Nashville, Chattanooga & St. Louis.

Belleville Line of Alton & Terre Haute.

Texas & Pacific.

Three of these four roads are Southern lines, and the Texas & Pacific, whose decrease per mile is great, not only suffers like the other Texas roads from the light crops of last year, but it has an enormous addition of mileage through an unpeopled country, over which as yet there is very little through traffic and substantially no local traffic.

half as great this year as last), the Grand Trunk and the Great Western show trifling decreases, the Northern Central and the Pennsylvania a moderate increase. The largest decreases are 24.8 per cent. on the Denver & Rio Grande (which still has much heavier earnings than in any year previous to 1881), 18½ per cent. on the International & Great Northern, 26 on the Texas & Pacific, and 30.7 on the Mobile & Ohio—Southern roads, it will be noticed. During these two months the shipments of grain from the Northwestern markets were the largest ever known in winter, and the receipts of these markets were also large. The heavy receipts must have added greatly to the earnings of the Northwestern roads, as they were carried at full rates; there could have been no profit whatever on the shipments, as they were carried nearly all the time at rates less than cost, but of course they contributed something to gross earnings. Since February the receipts and shipments have both been very light; but the Western roads have probably suffered most from this, as the lines east of Chicago have been getting about double their January rates on the shipments. But March was a very bad month for the Western roads last year. The earnings for trunk-line through freight in both directions must have been so far this year a small proportion of their total earnings, and they are likely to continue so for three months longer.

#### LEGISLATION FOR THE PREVENTION OF ACCIDENTS.

The Railroad Commissioners of the state of Connecticut, in accordance with the instructions of the General Assembly of that state, have made a report upon the "whole subject of car-coupling." Considering the fact that there are somewhere in the neighborhood of 2,000 patents on car-couplers, it will be seen that the instructions, if interpreted literally, would have imposed a very serious task upon the Commissioners. If it was the intention of the legislators of Connecticut that the Commissioners should make a comprehensive or complete report on the subject of car-coupling, they were a little careless about the wording of their instructions. At any rate, the Commissioners have not undertaken such a task, which they properly say is "illimitable."

They have, though, in accordance with their instructions, made "a report upon the whole subject," but it can hardly be called a whole or complete report on it. If some state legislature would authorize its railroad commissioners, or other competent persons, to make such an investigation, and provide for the expenses of doing it in a systematic and proper way, it would be an expenditure for one of the most humane objects for which an appropriation could be made. At present the whole subject is in a fog, from which only the shrieks of the wounded and groans of the dying can be heard with any distinctness. The Commissioners say they began a public investigation "continuing two days," which was "supplemented by further examinations and by personal inquiries of railroad men, in various positions, in different parts of the state." With this investigation to guide them they have recommended "the enactment of a law requiring that all freight-cars hereafter bought or built by the corporations operating railroads in this state shall be equipped with automatic couplers."

It will hardly be necessary to say to the readers of the *Railroad Gazette* that it has not hesitated to use very plain language in the discussion of the subject of car-coupling; that the terrible sacrifice of life and limb has been pointed out over and over again in these columns, and that the opinion has been expressed that a considerable part of it is preventable. Therefore, it can hardly be charged that we are indifferent to the lives and safety of trainmen if we are unable to agree with some of the recommendations of the Connecticut Commissioners.

It is quite true that any one who has given much attention to this subject finds some difficulty in restraining his indignation, when he contemplates the useless and preventable sacrifice of life and the awful suffering daily inflicted on the poor fellows who must earn their bread in this dangerous occupation. In the investigation of this subject it is essential, though, that our sympathies should not be permitted to interfere with right reason or sound judgment. It is to be feared that neither the Connecticut Commissioner nor the Hartford *Courant* have done this. The remark of that paper that it "can imagine opposition to such a bill (compelling the use of automatic couplers) from just two sources—the railroads and the undertakers"—would indicate a very proper use of the imagination, if it is quite certain that the use of automatic couplers is the most effective way of diminishing the number of accidents. But is that certain? If the testimony of men of experience is to be taken into account, many men are injured in uncoupling as

well as in coupling cars. Therefore, to guard against the danger of the former, automatic uncouplers as well as automatic couplers should be used. Or, supposing we had a device by which cars could be coupled and uncoupled without requiring men to go between the cars, it would avert the special danger which attends both coupling and uncoupling, and it would therefore be safer than appliances which are automatic only in coupling—which is all the Commissioners recommend—and not in uncoupling. If this view of the case is correct, it would seem that the Commissioners have recommended the compulsory adoption of a device which gives a less degree of security, thus preventing the use of one which would give more. If this inference is correct, there seems to be good reason why others besides "railroads" and "undertakers" should not approve of the proposed law. The point which we want to make clear is, that it has not been proved that automatic action in car-couplers gives the greatest degree of safety to trainmen; that there is much difference of opinion about it among the most experienced men and those most competent to form an intelligent opinion, and that an investigation "continuing two days, supplemented by further examination and by personal inquiries of railroad men" is not sufficient to support a conclusion so sweeping as the one covered by the Commissioners' recommendation.

The latter is also open to the objection of indefiniteness. The word "automatic," it is true, has an exact meaning, and in this connection what is meant by an "automatic coupling" is one which will couple itself without the co-operation of a man. But it is well known that no automatic coupler is absolutely sure. They all sometimes fail. It is true, that as they are exhibited by their inventors, and when everything is kept in good order, they work with a reasonable degree of certainty, but how would it be if a thousand or ten thousand cars were submitted to the kind of care which the vicissitudes of universal interchange imply? Evidently there are degrees of automaticity. Now, how automatic must the couplers be? Will one failure in a hundred or one in ten be permitted? Who shall be the judges whether a given device is sufficiently automatic or not? Shall it be the Railroad Commissioners, who know comparatively little about the matter, or railroad officers, who ought to know much? In this case the end to be required of the railroad company is dependent upon the means to be employed. Who shall determine what means are to be used, that is, whose automatic coupler shall be adopted? Suppose such a law to be enacted and the railroad companies should say to the Commissioners, "We want to comply with it, but do not know what automatic coupler to use, or whether the one we prefer will fulfill the required conditions," would the Commissioners feel disposed to assume the responsibility of selecting from the hundreds or thousands of inventions the one best suited for the purpose? If they did, their lot would not be an enviable one.

The fact is, the recommendation of the Commissioners is an interference with the administration of the railroads, and if this policy is once assumed by either a commission or a legislature, it is liable to get into no end of trouble, and is starting a voyage on a sea of uncertainty.

The Commissioners say that "it is no part of this report to indicate a preference for any particular invention, and, indeed, before doing so, a more critical comparison ought in justice to be had than yet has been made, but we have had in mind certain requirements which we regard as essential." Now if these requirements are "essential," they should be embodied in the law, otherwise the latter will be ineffectual. If then the requirements enumerated by the Commissioners were embodied with their recommendation, the law would read somewhat like this: "All freight cars shall be equipped with automatic couplers, the draw-bars of which shall be of uniform height, and must not only couple automatically with one of its own kind, but it must admit of being coupled with the ordinary form of draw-bars, without subjecting the brakemen to any increased danger. It must be so simple as not to be liable to get out of order, and so strong as not to be easily broken." In addition thereto there should, for the sake of definiteness, be a clause saying that it should not fail to couple oftener than once in say forty times, with one of its own kind. An inspector of couplers would then be needed to determine whether those in use fulfilled the conditions of the law.

We have no intention, though, of throwing ridicule on this very serious subject, further than is necessary to show the impracticability of such legislation.

But it may be asked, what then should the General Assembly and the Railroad Commissioners of Connecticut and other states do to diminish the loss of life

and suffering incurred in coupling cars, a great part of which the *Railroad Gazette* has stated repeatedly is preventable? The course to be pursued seems very plain. In the first place, for the present restrain the action of the Commissioners to the functions of investigation, inspection and reporting on railroad matters. With the special matter of car-coupling in view, let the Assembly pass a bill instructing the Railroad Commissioners to investigate all accidents occurring from coupling cars which in their opinion are sufficiently serious to require such an inquiry, and to make a report on them once a month, indicating the causes and suggesting what measures should be adopted by railroad companies to prevent similar accidents in the future. The act should provide too for the employment and payment of a reporter to take down the testimony, which should be put on file in the Commissioners' office. It should also give authority for compelling the attendance of witnesses, for defraying the necessary expenses of the investigations and for printing and issuing the reports promptly, and should compel railroad companies under proper penalties to report all accidents to the Commissioners within a reasonable time.

If a law of this kind was enacted, and such investigations and reports were made of all serious accidents to railroad employés, no railroad company could long refuse to remedy defects which caused them. If one did, the legislature could then assert and exercise its authority, but until that is shown to be necessary, it would be best to imitate the wisdom of feline animals and not display the legislative claws until they need to be used.

#### Qualifications of Railroad Commissioners.

The New York railroad commission bill is still under discussion in the Legislature, where the struggle to secure the patronage involved in the four or five appointments is evidence that we cannot with any confidence expect any valuable service from a New York commission. It seems almost certain that the offices, like most other state offices, will be used to pay party debts and to carry out political plans; and if so, the commission will never be of any use. It may be said that it may be as useful as other state offices, also filled according to partisan considerations; but this is not true. Nearly all the other state offices have well-established duties connected with them which must be performed in one way or another, and in some of which a very bad execution of the duties would be a matter of public knowledge; while in the offices which require the most technical knowledge, the judgeships, centuries of experience have established methods and standards, and a class including the ablest men in the community gain their livelihood by watching and conducting the cases before the judges, while the latter must be selected from ranks of lawyers. But a railroad commission must to a very great extent choose its own work and its own methods, having no established and generally recognized precedents; it has, as it were, to evolve a body of laws and a code of proceedings; it must do this while subject to no criticism from skilled experts, pointing out mistakes or errors in principle as they occur, and will probably receive little criticism of any kind, and very little indeed which carries any authority with it. This is a very different work from performing sundry executive functions and a vastly more difficult one; and it will not be done so as to have any value unless it is intrusted to men of exceptional ability, judicial minds, and a knowledge of economical principles; while even such men, unless they also possess a special knowledge of railroad business, can do little more than make investigations for the first year or two.

The only recognition that any special knowledge is required in a railroad commission is in an amendment adopted this week that one of the members of the board shall be "a civil engineer." This, however, does not provide that he shall have had any railroad experience, or have any knowledge of railroads that would be practically useful in the office. The "civil engineer" may have spent all his life in harbor works, on streets, sewers, water-works, and the like. He would then probably have a knowledge of the general principles of construction, which would be a good thing; but he would have no knowledge of special railroad structures, machinery and workings, which he would need in investigating railroad accidents; and even if he were a civil engineer on a railroad, he might have scarcely any knowledge of railroad operation, and railroad machinery, to faults in which many more accidents are due than to faults in permanent way, which latter is peculiarly the field of what is generally known as the "civil engineer" on the railroad. But a railroad commission, unless it works differently from those already established in the United States, will have occasion to apply the traffic manager's knowledge ten times to once that it needs the civil engineer's knowledge. It is a popular delusion that a knowledge of engineering includes the principles of rate-making, freight classification, etc., with which engineering has little more to do than with the prices of any other goods. It is true that a man with the training and exact methods of an engineer is more likely to attain an understanding of the principles of traffic management or almost any other commercial business than a man without training of any kind; but he has to learn them like any one else, and his expertise in surveying, or bridge construction or train management does not teach him.

The English law establishing the British Railway Commission (which is a court, and not like our commissions)

requires that one of them shall be "of experience in railway business," and the incumbent was formerly the Manager of an important English railroad. The different kinds of railroad knowledge desirable in a railroad commissioner in one of our states are rarely found combined, except in engineers who have had several years experience as general superintendents or general managers, in which positions they are almost always forced to pay attention to traffic management. Of course there are some railroad officers who study this business while not engaged in it, but on the whole the number of those who have an understanding of the whole field of railroad business—such men as Hugo Riddle, Albert Fink and Robert Harris—are not easy to find, and we can hardly expect that the state of New York can secure such a one for its commission (if it decides to have one). But it should have at least one member who has some knowledge of the questions which will most frequently come before it for consideration, and it will not secure such a one simply by prescribing that he shall be "a civil engineer."

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

*Austin & Northwestern*.—Completed for thirty-five miles westward from Austin, Tex., an extension of 19 miles.

*Eradford, Eldred & Cuba*.—Track laid from Ceres, N. Y., north to Bolivar, 7 miles. Gauge, 3 ft.

*Chicago, Burlington & Quincy*.—The *Denver Extension* is extended westward to the Platte River, Col., 5 miles.

*Chicago & Northwestern*.—The *Lake City Branch* is completed by laying track from Stratford, Ia., west to Dayton, 13 miles.

*Chicago, St. Paul, Minneapolis & Omaha*.—The *Blue Earth City Branch* is extended from Blue Earth City, Minn., south to Elmore, 10 miles.

*Cincinnati, Van Wert & Michigan*.—Extended from Pleasant Point, O., north to Latty, 2 miles.

*Montgomery Southern*.—Track laid from Montgomery, Ala., south to Snowdon, 10 miles. Gauge, 3 ft.

*New York, Chicago & St. Louis*.—Extensions have been made east of Brocton, N. Y., 5 miles; east to Erie, Pa., 19.98 miles; east to Vermillion, O., 12.44 miles, and east of Hammond, Ind., 23.26 miles, being 60.66 miles new track in all.

*New York, Lackawanna & Western*.—Track laid from Pavilion Centre, N. Y., west 9 miles.

*Northern Pacific*.—Extended from Little Rosebud, Montana, west 20 miles. Also from Lake Pend d'Oreille east to Rock River, Idaho, 17 miles.

*Tennessee & Sequatchie Valley*.—Completed from Spring City, Tenn., west to Grand View, 5 miles.

This is a total of 178 miles of new railroad, making 1,958 miles thus far this year, against 682 miles reported at the corresponding time in 1881, 887 miles in 1880, 317 miles in 1879, 242 miles in 1878 and 190 miles in 1877.

**CHICAGO SHIPMENTS EASTWARD** for the week ending March 25 were 24,335 tons, against 38,646 tons the previous week, 45,758 tons in the corresponding week of last year, and 87,690 tons in the corresponding week of 1880, when they were the largest ever made in a single week. Of the shipments of the week this year, 26.4 per cent. were by the Chicago & Grand Trunk, 22.3 by the Michigan Central, 13.1 by the Lake Shore, 24.3 by the Fort Wayne, 8 by the Pan-handle, and 6 by the Baltimore & Ohio. Again the Chicago & Grand Trunk has the largest proportion of the shipments, due to its contract's at reduced rates, which it was understood when negotiations were had with it and it agreed to maintain rates thereafter would not prevent an immediate restoration of rates. Its gain seems to be chiefly at the expense of the Lake Shore, though the other lines also lose. The shipments are now very light, and must be under almost any imaginable circumstances.

For the week ending April 2, the returns of the Chicago Board of Trade (as published in the *Chicago Tribune*) show shipments billed directly from Chicago amounting to 25,837 tons, against 25,891 the previous week, and 53,963 tons in the corresponding week of last year. Shipments usually fall off just before navigation opens, and this year vessels loaded with grain cleared from Chicago April 1, while last year May 3 was the date of the first opening. But year before last, when also the lakes opened April 1, the shipments in the last week of March were larger than last year even.

Again the Grand Trunk is credited with a larger proportion of the shipments than any other road, and with nearly as much as the Michigan Central and the Lake Shore together, the former showing a remarkable falling-off, taking only 5 per cent. of the provisions and 9 per cent. of the grain, while the Grand Trunk took 38.5 per cent. of the grain. The two Pennsylvania roads took 81 per cent. of the provisions, and nearly 25 per cent. of the grain and flour. The two Vanderbilt roads had 11.5 per cent. of the provisions and 31.5 per cent. of the grain and flour.

Of the shipments last week, 6,166 tons were flour (against 16,585 last year), 15,254 tons were grain (against 30,625 tons last year), and 4,421 tons were provisions (against 6,758 last year). The sailing vessels compete only for the grain: the propellers running in connection with the trunk lines carry some flour and a little provisions. But last year, out of a total of 562,768 tons of hog products shipped from Chicago, only 8,233 tons went by lake; and out of a total of 4,499,718 barrels of flour shipped thence, only 159,415 barrels went by lake. As last year, however, was unusually unfavorable to the lake vessels, owing to the very low rail rates, we will do well to examine the movement in 1880, when the rail rates never went below 30 cents per 100 lbs.

for grain and flour, and were higher than before during the season of navigation for several years.

In 1880, then, out of 682,520 tons of hog products shipped from Chicago, 65,353 tons went by lake; and out of 2,862,737 barrels of flour, 527,873 barrels went by lake. The total lake shipments of these staples in this year unusually favorable to lake shipments were thus about 119,142 tons—less than two weeks' total rail shipment in January or February last, and amounting to 9.5 per cent. of the provisions and 18.5 per cent. of the flour shipped in 1880. It thus appears that at rates higher than are now charged by the railroads, no important part of the grain and provision traffic left the rail for the water route. The flour trade is now larger than in 1880; the provision trade smaller.

**LAKE NAVIGATION** opened April 1. At least on that day four or five vessels with cargoes of grain cleared Chicago for Buffalo, though it may not have been possible then to get through the Straits. Three or four vessels had cleared earlier for the lower lakes, but they sailed without cargoes. Insurance cannot be had until April, and this keeps vessel back when the Straits are open. All the quotations for cargoes are at 2.5 cents for corn to Buffalo, and there seems to be no pressure of freight at this rate. Contracts through by lake and canal are said to have been made at 7 cents a bushel, which, allowing for the transfer at Buffalo, gives the canal boat but 4 cents a bushel—an unheard of opening rate, and one which is very low at any time. Announcement is made that the canal will be opened April 11, which is extraordinarily early. If there were great accumulations of freight at lake ports this early opening would be a great advantage to the vessel interest, making it possible to make one-seventh more trips than usual; but as there is very little freight to carry, it will probably be a positive disadvantage, sharpening the competition for the freight which a small part of the fleet could readily carry. The iron ore and lumber freights are, however, likely to be large this season, and these occupy a large number of vessels, though usually not the best ones. As the opening lake rate last year was 5 cents a bushel, it is plain that the situation is now very discouraging to vessel-owners. The trip by which a vessel earned \$3,000 last year brings it but \$1,350 this year, and there is no probability of an improvement for some months to come.

**LIVE STOCK TRAFFIC** was considered at a meeting at Mr. Fink's office on Thursday of last week, when a contract was agreed upon for dividing this business and the closely related traffic in fresh meat. The contract was like those for freight and passenger traffic, providing that an apportionment of the traffic among the several roads shall be made and how it shall be made, but not making it; but it was to date from April 10 and to run for five years. Notice was given that the live-stock rates, which have been irregular and generally 20 cents or less per 100 lbs. for a long time, would be advanced April 10 to 50 cents gross and 40 cents net from Chicago to New York, the net rate being made on shipments made as directed by the joint agent of the associated roads, who is to see that the traffic is divided as agreed. The Grand Trunk was not represented at this meeting, and as it had not signed the contract last Wednesday, notice was given that the advance in rates would not take place on the 10th, as had been announced. The Grand Trunk is expected to sign the contract finally, and it has not made any objections to it; but it has not signed, and this in connection with its continuance in carrying at cut rates after signing the freight contract make the other railroads somewhat distrustful of it. According to its President's speeches at the London half-yearly meetings, it has been most anxious that rates should be maintained, and willing to do anything reasonable to secure that end. It has now an excellent opportunity to secure that desirable end; if it will maintain rates they are pretty sure to be maintained.

#### General Railroad News.

##### MEETINGS AND ANNOUNCEMENTS.

###### Meetings.

Meetings will be held as follows:

*Lake Shore & Michigan Southern*, annual meeting, at the office in Cleveland, O., May 3, at 10 a. m.

*Michigan Central*, annual meeting, at the office in Detroit, Mich., May 4, at 10 a. m.

*New York, Susquehanna & Western*, annual meeting, in Jersey City, N. J., May 4, at noon.

###### Railroad Conventions.

The *Association of American Railway Superintendents* will hold its third meeting on Wednesday, April 19, beginning at 10 a. m., at the Railway Club Rooms, No. 40 Bond Street, New York.

The *Railway Car Accountants' Association* will hold its annual meeting in Boston, beginning on Tuesday, May 23, at 10 a. m. The Hotel Vendome has been selected as headquarters for members.

The *Southern Time Convention* will meet at the Railway Club Rooms, No. 48 Bond street, New York, Wednesday, April 19, at 11 a. m.

The *General Time Convention* will meet at the Kennard House in Cleveland, O., April 12, at 11 a. m.

###### Dividends.

Dividends have been declared as follows:

*Delaware, Lackawanna & Western*, 2 per cent., quarterly, payable April 20. Transfer books close April 5.

*Housatonic*, 2 per cent., quarterly, on the preferred stock, payable April 15.

*Boston, Clinton, Fitchburg & New Bedford* leased to Old Colony, 3 per cent., semi-annual, on the preferred stock, payable April 1.

*Saint Paul, Minneapolis & Manitoba*, 3.5 per cent., semi-annual, on the preferred stock, payable April 5.

*Vermont & Massachusetts* (leased to Fitchburg), 3 per cent., semi-annual, payable April 7.

*Nashville, Chattanooga & St. Louis*, 1.5 per cent., semi-annual, payable April 20. Transfer books close April 6.

##### Western Trunk Lines Association.

A dispatch from Chicago, April 5, says: "The annual meeting of the Western Trunk Lines Passenger Association was held yesterday. It was decided to continue the Association for the reason that although the troubles regarding emigrant bus ness with the Eastern Trunk Lines had been settled, yet there was considerable danger that in case the Association was discontinued, the Eastern Trunk Lines might demand the re-titration of the money paid to the various roads in the Association during the past year for arrangements. The Eastern lines would also be likely to discriminate against the roads belonging to the Association to punish them for the fight they have made. It was charged that even now the Eastern Trunk Lines were practicing more or less discrimination in the distribution of emigrant business against the associated roads."

##### ELECTIONS AND APPOINTMENTS.

*American Steamship Co.*—At the annual meeting in Philadelphia, April 2, the following were chosen: President, Henry D. Welch; directors, John Price Wetherill, D. B. Cummings, N. Parker Shortridge, Strickland Kneass, William D. Winsor, G. P. Roberts, Henry C. Butcher, J. N. DuBarry, Joseph W. Lewis, Edmund Smith.

*Belair, Zanesville & Cincinnati*.—Mr. Edwin Turner, of Zanesville, O., has been appointed Chief Engineer.

*Boston, Hoosac Tunnel & Western*.—The offices of this company have been removed from North Adams, Mass., to Mechanicville, N. Y. The offices of the President and Treasurer continue in Boston.

*Buena Vista & Gunnison*.—This company has elected L. P. Rogers President; E. Herrick Secretary and Treasurer; J. H. Achier, Superintendent of Construction.

*Central Underground, of New York*.—The officers recently chosen are as follows: President, Gen. Cochran; Vice-President, Wm. E. Worthen; Secretary, Wm. Kent; Treasurer, Henry C. Stetson; Chief Engineer, John Schuyler.

*Chicago & Alton*.—At the annual meeting in Chicago, April 3, the following directors were chosen for three years: Lorenzo Blackstone, Norwich, Conn.; John Crerar, Chicago; John J. Mitchell, St. Louis; for one year to fill vacancy, Morris K. Jesup, New York. All are re-elected. The board re-elected T. B. Blackstone President; Charles H. Foster, Secretary and Treasurer.

*Chicago & Alton Leased Lines*.—At the annual meeting in Chicago, April 3, the following officers were chosen: *Joliet & Chicago*.—John Crerar, President, *Mississippi River Bridge Co.*; John Crerar, President, *Joliet & Chicago*.—President, George Straut; directors, T. B. Blackstone, John Crerar, N. W. Green, Charles D. Hodges, Josiah Sawyer, L. E. Worcester; Secretary, W. J. Bryson; Treasurer, T. B. Blackstone.

*Chicago & Eastern Illinois*.—Mr. D. R. Patterson has been appointed Purchasing Agent, with office in Chicago.

*Chicago Freeport & St. Paul*.—The officers of this company are: President, Wm. O. Wright, Freeport, Ill.; Vice-President, John F. Smith, Freeport, Ill.; Secretary, W. H. Wilcoxon, Freeport, Ill.; Treasurer, W. P. Watson, New York; General Manager, A. V. Richards; General Agent, H. J. Porter; Chief Engineer, E. Baldwin.

*Cincinnati, Hamilton & Dayton*.—Mr. Thomas Sullivan has been appointed Superintendent of the Dayton & Michigan Division in place of E. E. Dwight, resigned.

*Delaware & Hudson Canal Co.*.—Mr. C. S. Pease has been appointed General Baggage Agent, with office in Albany, N. Y. His jurisdiction extends over all this company's lines.

*Delaware, Lackawanna & Western*.—The office of Purchasing Agent has been divided. Mr. G. W. Buching retains charge of the purchase of general supplies, and Mr. W. D. Hager will have charge of the purchase of lumber and oil as a separate department.

*Denver & Rio Grande*.—At the annual meeting in Colorado Springs, Col., April 4, the number of directors was increased to nine and the following were elected: William J. Palmer, William A. Bell, Charles T. Woerishoffer, D. C. Dodge, Lyman K. Bass, H. A. Risly, A. Engier, C. B. Lambo, J. W. Gilluly.

*Fayetteville & Winston*.—This company was recently organized at High Point, N. C., by the election of the following directors: W. S. Bill, A. M. Farnum, James M. Gere, A. J. Phelps, Marvin Porter. The board elected A. J. Phelps President; James M. Gere, Secretary and Treasurer; Marvin Porter, Chief Engineer; W. S. Bill, Attorney.

*Fl. Madison & Northwestern*.—Mr. Charles Harley has been appointed Chief Engineer in place of Charles A. Gilchrist, resigned.

*Great Western, of Canada*.—Mr. Charles Stiff, late Superintendent, has been promoted to the position of Assistant Manager. Mr. John Burton succeeds Mr. Stiff as Superintendent; he was recently Assistant Manager of the Detroit, Grand Haven & Milwaukee.

*Green Bay, Winona & St. Paul*.—Mr. W. R. Hancock has been appointed Assistant Treasurer.

*Henderson Bridge Co.*.—Mr. F. W. Vaughan, late Consulting Engineer, is appointed Chief Engineer in place of Mr. F. de Funak, who resigns on account of the pressure of other duties.

*Illinois Central*.—Mr. Charles K. Dixon has been appointed Train-Master of the Waterloo-Ft. Dodge Section of the Iowa Division, with office at Ft. Dodge, Iowa.

*Illinois Midland*.—The United States Circuit Court has appointed D. H. Corklin Receiver in place of L. Genis, removed. Mr. Corklin was recently connected with the Chicago, Peoria & Southwest, and is a railroad officer of experience.

*Indiana, Bloomington & Western*.—Mr. H. C. Sprague has been appointed Superintendent of Telegraph.

*International & Great Northern*.—This company has re-elected the following officers: Jay Gould, President; R. S. Hays, First Vice-President; T. W. Pearsall, Second Vice-President; D. S. H. Smith, Secretary and Treasurer; H. B. Wilson, Assistant Secretary and Treasurer; H. M. Hoxie, General Manager.

*Iowa Railroad Commission*.—The Governor of Iowa has appointed Hon. James F. Wilson Railroad Commissioner in place of M. C. Woodruff, whose term has expired. Mr. Wilson is a farmer and a prominent man in Iowa politics; he has served in the Iowa Legislature and in Congress.

*Junction (Philadelphia).*—At the annual meeting in Philadelphia, April 3, the following were chosen: President, Isaac Hinckley; directors, Franklin B. Gowen, Henry M. Phillips, George B. Roberts, Samuel M. Tilton.

*Mexican Central.*—At the annual meeting in Boston, April 3, the following directors were chosen: Sebastian Cimino, Rudolph Fink, Ramon G. Guzman, Mexico; F. L. Ames, Isaac T. Burr, B. P. Cheney, Thomas Dana, A. B. Lawrie, Frank Morison, Albert W. Nickerson, Theodore Nickerson, Thomas Nickerson, Charles J. Paine, Royal M. Pulsifer, Wm. Rotch, Robert R. Seymour, Levi C. Wade, Boston.

*Michigan Central.*—Mr. Ashley Pond is appointed the General Solicitor of this company, in charge of its legal business, vice Mr. G. V. N. Lothrop, resigned. The office of the General Solicitor will be at Detroit, Mich.

Mr. Wm. H. Fellows has been appointed Division Master Mechanic, with office in Detroit, Mich. He was formerly Foreman of the Aurora roundhouse on the Chicago, Burlington & Quincy.

*Missouri Pacific.*—Mr. W. H. Knigh has been appointed General Northwestern Agent, with office in Chicago.

*New River.*—At a meeting held in Richmond, Va., March 28, the following were elected: President, F. J. Kimball; directors, George F. Tyler, Thomas Graham, William G. MacDowell, Henry Fink, W. C. DeArmond, C. Wood. The company is controlled by the Norfolk & Western.

*Northern Pacific.*—The following circular from General Manager Haupt announces officially a change we have already noted: it is dated St. Paul, Minn., April 1:

"Mr. George W. Cushing has been appointed Superintendent of Motive Power, Machinery and Rolling Stock on the Northern Pacific Railroad.

"He will have the general charge of all the machinery and rolling stock of the company on the Eastern divisions, including branches, extensions and leased lines, and all division master mechanics and shop foremen will be subject to his directions, and will make such reports to him as he may prescribe.

"He will have the supervision of the records of the Machinery Department, and the custody of all property connected therewith. No change will be made in the relations of the Car Accountant, who will continue as heretofore under the direction of the Superintendent of Transportation.

"The duties of the Superintendent of Motive Power, Machinery and Rolling Stock will be as prescribed in the plan of the organization, adopted Jan. 1, 1882, with such modifications as may be made from time to time, of which notice will be given by circular.

"Mr. Cushing will enter upon his duties from and after this date; headquarters at St. Paul."

*Northeastern (South Carolina).*—Mr. Graham Davies has been appointed Trace and Claim Agent.

*Oregon Railway & Navigation Co.*—Mr. John Muir, heretofore General Freight and Passenger Agent, has been appointed Superintendent of Traffic. Messrs. Goodall, Perkins & Co., of San Francisco, have been appointed Superintendents of the Ocean Division.

*Panama.*—At the annual meeting in New York, April 3, the following directors were chosen: Trenor W. Park, Charles G. Franklyn, J. G. McCullough, D. O. Mills, Joseph Ogden, Wm. B. Dinsmore, Thomas Maddock, George Garr, R. W. Thompson, Jesse Seligman, E. P. Fabbri, J. W. Ellis, Theo. J. De Sibla.

*Pennsylvania.*—The new board has re-elected George B. Roberts, President; A. J. Cassatt, First Vice-President; Edmund Smith, Second Vice-President; John C. Sims, Jr., Secretary; John D. Taylor, Treasurer; Strickland Kneass, John P. Green, Joseph N. DuBarry, Assistants to the President.

The following officers (all re-appointment) were nominated by the President for the ensuing year, and confirmed by the board: General Manager, Frank Thomson; General Superintendent Pennsylvania Railroad Division, Charles E. Pugh; General Superintendent United Railroads of New Jersey Division, F. Wolcott Jackson; General Superintendent Philadelphia & Erie Division, Robert Neilson; Chief Engineer, W. H. Brown; Consulting Engineer, W. Hassell Wilson; General Freight Agent, J. McC. Creighoun; General Passenger Agent, James R. Wood; Assistant General Passenger Agent, George W. Boyd; Assistant Secretary, D. S. Newhall; Assistant Treasurer, Wm. H. Fraley; Cashier, B. F. Crawford; Comptroller, R. W. Downing; Assistant Comptroller, M. F. Riebenack; Purchasing Agent, Enoch Lewis; Assistant Purchasing Agent, Thomas D. Sargent; General Solicitor, John Scott; Assistant General Solicitor, James A. Logan; Chief Conveyancer, George W. I. Ball.

Mr. Robert E. Pettit is to be Superintendent of the New York Division, in place of Mr. James McCrea, promoted to be General Manager of the Pittsburgh, Cincinnati & St. Louis.

*Pennsylvania Company.*—Mr. Wm. A. Baldwin, now Manager, is appointed General Manager of this company's lines, in place of D. W. Caldwell, resigned. The appointment will take effect May 1. It is understood that the office of Manager will not be filled.

*Pittsburgh, Cincinnati & St. Louis.*—Mr. James McCrea is appointed General Manager from May 1, in place of D. W. Caldwell, resigned. Mr. McCrea is now Superintendent of the New York Division of the Pennsylvania Railroad.

*Portage & Cuba.*—The directors of this new company are as follows: R. G. Taylor, Grover Cleveland, E. W. Ways, G. J. Sicard, Howard H. Baker, A. D. Bissell, J. W. Bridge- man, W. S. Bissell, J. A. Read, Buffalo; N. S. Beardislee, Wolcott J. Humphrey, William Bristol, Warsaw, N. Y., J. V. D. Loomis, Atchison, N. Y.

*Raleigh & Gaston.*—Mr. F. W. Clark has been appointed General Freight and Passenger Agent, and Thomas Badger Assistant General Freight and Passenger Agent.

*Richmond & Petersburg.*—Major E. D. T. Myers having declined the position of Superintendent, Mr. J. R. Kenly has been appointed Acting Superintendent. Mr. Kenly is from Baltimore, and is a civil engineer. He will have charge of the rebuilding of the bridge over the James River.

*St. Louis, Alton & Terre Haute.*—Mr. J. L. Hinckley has been appointed Superintendent of the road operated by this company, from St. Louis to DuQuoin and Eldorado, with office in Belleville, Ill.

*St. Paul & Duluth.*—The position of General Freight and Passenger Agent has been offered to Mr. W. H. Dixon, now Commissioner of the Western Trunk Lines Association. He has not yet accepted.

*South Carolina.*—In Charleston, April 5, Frederick Hardy, T. Bailey Myers and Percy R. Payne, of New York, were chosen directors, in place of E. E. Chase, J. H. Fisher and H. C. Hardy. The board elected Henry P. Talmadge President, in place of J. H. Fisher.

*South Pacific Coast.*—Mr. R. M. Garrett is now General Freight and Passenger Agent, and George H. Waggoner is Secretary and Purchasing Agent. Offices in San Francisco

*Staten Island.*—At the annual meeting, April 4, the following directors were chosen: Joseph Britton, Charles A. Canavello, Wm. King, B. Kriescher, G. F. Kriescher, James A. McNamee, Nathaniel Marsh, J. W. Mersereau, Loui. M. Myer, George P. Ockershausen, Jacob H. Vanderbilt, Jacob H. Vanderbilt, Jr., J. J. Winant. The board re-elected Jacob H. Vanderbilt President.

*Toughiglen.*—The officers are: President, F. A. Dingee, Philadelphia; Superintendent, Wm. Wilson, Irwinton, Pa.; Secretary and Treasurer, S. F. Billmyer, Philadelphia.

#### PERSONAL.

—Mr. Charles A. Gilchrist has resigned his position as Chief Engineer of the Ft. Madison & Northwestern road.

—Mr. H. T. La Bar, General Freight Agent of the Chicago, Saginaw & Canada, has resigned to accept a position on the Indiana, Bloomington & Western road.

—Mr. Jacob L. Van Schoonhoven, an old citizen and banker of Troy, N. Y., died in that city April 3, aged 75 years. He was formerly a director of the Rensselaer & Saratoga Company.

—Mr. O. E. Farnsworth, bridge builder and contractor on the On-ha Extension of the Missouri Pacific, whose death was reported by a local paper, denies the charge, and says that he has not even been sick.

—Mr. C. H. Parker, formerly Engineer of the National Bridge & Iron Co. of Boston, at the time when that concern had many important contracts, has been appointed Engineer of the Ft. Pitt Bridge Works in Pittsburgh.

—Mr. D. W. Caldwell, General Manager of the Pennsylvania Company, has finally tendered his resignation, to take effect May 1 next. It is understood that he will have charge of the New York, Chicago & St. Louis road, either as President or General Manager.

—It is reported that Mr. James McCrea, now Superintendent of the New York Division of the Pennsylvania Railroad, will succeed Mr. D. W. Caldwell in the management of the Pittsburgh, Cincinnati & St. Louis road. It is also reported that Mr. Charles Watts will succeed Mr. McCrea on the New York Division.

—Mr. G. M. Sarpell, Master of Road of the Pittsburgh Division of the Baltimore & Ohio road has resigned his position, and will probably go into private business. Mr. Sarpell came to this road from the Louisville & Nashville in 1867, and has been connected with it ever since. For nearly a year past he has been Master of Transportation also.

—Mr. Moses Taylor, well known as a director and large owner of the Deliwa, Lackawanna & Western and other companies, has given \$250,000 in New York, Lackawanna & Western bonds to be applied to the support of a hospital in Scranton, Pa., for the benefit of railroad employees, miners and others. A part of the money will be used to erect a suitable building, the balance to be an endowment for the support of the hospital.

#### TRAFFIC AND EARNINGS.

##### Railroad Earnings.

Earnings for various periods are reported as follows:

Three months ending March 31:

	1882.	1881.	Inc. or Dec.	P. c.
C. St. P., M. & O.	\$1,048,155	\$682,028	\$34,327	57.0
Den'r & R. G. ....	1,439,056	1,023,649	146,307	40.6
Long Island ....	377,829	324,509	43,324	12.9
Louis. & N. W. ....	2,008,329	2,365,784	43,575	13.9
Mil. L. & W. ....	205,514	103,404	103,110	99.7
Mobile & Ohio ....	472,228	672,029	D. 199,701	29.7
North. & Pacific ....	89,240	338,195	L 534,005	149.4
S. P. Min. & Man. ....	1,341,948	664,308	L 077,540	102.0
St. L. & San Fran. ....	770,304	635,628	L 123,700	18.9
Union Pacific ....	5,947,733	4,300,330	L 1,558,384	35.5

Two months ending Feb. 21:

	\$318,231	\$318,550	D.	83'9	0.1
Net earnings....	120,076	104,572	L 15,504	14.8	
Northern Central. ....	820,159	768,814	D. 52,105	6.8	
Net earnings....	214,419	275,013	D. 60,594	22.0	

Month of February:

	\$404,524	\$308,238	L	\$6,256	1.6
Month of March:					

	\$385,687	\$291,649	L	\$154,038	66.4
C. St. P., M. & O.	\$353,055	\$308,493	L	136,562	34.3
Denver & R. G. ....	136,363	129,902	L	16,373	12.6
Long Island ....	1,055,745	941,701	L	114,044	12.1
Louis. & N. W. ....	75,288	33,996	L	41,272	121.4
Mil. L. & W. ....	152,631	230,916	L	78,265	33.9
Northern Pacific ....	384,000	162,984	L	221,016	135.6
S. P. Min. & Man. ....	528,130	250,630	L	275,500	109.9
St. L. & San Fran. ....	274,056	261,950	L	12,997	4.9
Union Pacific ....	2,226,832	1,674,860	L	551,972	33.0

Third week in March:

	\$47,755	\$35,837	L	\$11,918	66.1
Bur. C. R. & No. ....	136,002	125,030	L	11,042	8.8
Chi. & East'n Ill. ....	32,916	30,631	L	2,285	7.5
Chi. & Gd. Trunk. ....	40,405	31,360	L	18,105	57.6
Great Western ....	93,610	110,786	D	17,176	15.5

##### Grain Movement.

For the week ending March 25, receipts and shipments of grain of all kinds at the eight reporting Northwestern markets, and receipts at the seven Atlantic ports, have been, in bushels, for the past six years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1877	1,844,701	1,822,711	1,423,453
1878	4,339,829	2,528,517	4,149,897
1879	3,010,710	2,800,223	4,383,816
1880	4,912,230	4,122,194	5,850,608
1881	2,906,494	2,046,187	5,377,157
1882	2,204,654	1,422,233	1,303,314

The receipts of the Northwestern markets were 700,000 bushels (24 per cent.) less than in the corresponding week of last year, and 2,700,000 bushels (55 per cent.) less than in 1879, and were the smallest since 1877. They were, however, 236,000 more than the week before, and the largest for five weeks. The shipments of these markets were 624,000 bushels (30% per cent.) less than in the corresponding week of last year, 2,750,000 bushels (65 per cent.) less than in 1880, and the smallest since 1877. They were also 812,000 bushels (36 per cent.) less than the week before, and were smaller than in any previous week of this year, and smaller than in any week of 1881. Of these shipments 24,908 bushels, or 2.5 per cent., went down the Mississippi. These river shipments are the smallest since January. The Atlantic receipts of the week were less than quarter of those of the corresponding week last year, and with the exception of the previous week, were not only than in any corresponding week in a record that goes back to 1873, but are smaller than in any other week since June, 1873, with three exceptions—one in January, 1877; one in February, 1875, and one in December, 1874.

Of the Northwestern receipts Chicago had 35.5 per cent.,

Peoria 20.9, Milwaukee 13.4, Toledo 4.5, Detroit 3.5, Cleveland 2.7, and Duluth 0.7 per cent. The gain over the previous week was chiefly at Chicago and Peoria, the latter's receipts being the largest for six weeks.

Of the Atlantic receipts New York had 42.9 per cent., Boston 22.5, Baltimore 10.4, Philadelphia 10.1, New Orleans 9.8, Portland 2.5, and Montreal 1.8 per cent. Though the total receipts were remarkably small, the receipts at Boston were the largest for five weeks.

Of the 1,298,270 bushels of grain exported from Atlantic ports in this week 64.2 went from New York, 21.4 from Baltimore, 8.3 from Boston, 3.8 from Portland, and 2.8 per cent. from New Orleans.

For the week ending March 29 the total exports were 1,434,153 bushels of grain and 90,211 barrels of flour, against 4,318,444 bushels of grain and 129,789 barrels of flour in the corresponding week of last year. For the eight weeks ending March 29 the exports of flour and grain for three successive years have been:

	1882.	1881.	1880.
Flour, bbls.	722,120		

week of February in 1880. The advance in rail rates from Chicago should not have affected the receipts of those places as navigation was about to open and lake rates were the lowest ever known at the opening. But the roads have been horrible, on account of much rain, in many parts of the West, and this has prevented the farmers from marketing grain if they wished to.

But no other explanation of the light receipts is needed than that furnished by the Department of Agriculture, which, from data collected in 400 counties in Ohio, Indiana, Illinois, Iowa, Missouri, Kansas and Nebraska—the corn exporting states—reports that at that date the farmers had on hand but 175,000,000 bushels of corn this year, against 388,000,000 last year, and 36,000,000 bushels of wheat, against 64,000,000 last year. This shortage of 213,000,000 bushels of corn is one-half more than the total seaboard receipts have been in any year, and indicates that the farmers have substantially none to spare.

#### TICKET COMMISSIONS.

Mr. W. H. Dixon has issued the following circular :

At a meeting called to consider the question of ticket commission reform, held at No. 46 Bond street, New York, March 22, 1882, the following preamble and resolutions were adopted :

"Whereas, In the opinion of this meeting it is deemed inexpedient to attempt at present further elaboration of plans for securing reform in the matter of paying commissions on ticket sales; and,

"Whereas, Discussions and conferences heretofore had have demonstrated the existence of a sincere appreciation on the part of leading lines of railway of the necessity of suppressing this growing evil; therefore,

"Resolved, That its further consideration be assigned to a committee which shall consist of nine leading general passenger agents, who shall be and are hereby requested to prepare a plan or plans for further action, which plan or plans shall, through the Chairman, be submitted to managers of passenger traffic with request for co-operation and suggestion.

"Resolved, That said committee be requested, at such times and place as they deem expedient, to issue, through the Chairman, a call for a general meeting to further consider the commission question."

#### JOINT EXECUTIVE COMMITTEE CIRCULARS.

Commissioner Fisk has issued a circular calling for revised lists of contracts for freight, in accordance with the following resolutions of the Joint Executive Committee:

"Resolved, That a revised list of contracts be sent to the Commissioner by each of the general freight agents of the initial roads over which said contracts were made; said list not to embrace any contracts that were not already reported, omitting only such as have expired by limitation or have been abrogated.

"Resolved, That commencing with March 13, 1882, all drawback vouchers that may become necessary in order to carry out the existing approved contracts shall be submitted to the Chairman for approval before they are paid. All freight shall be billed at full tariff rates from and after that date."

Another circular contains a copy of the following resolution of the Joint Executive Committee:

"When traffic originates upon roads which are not represented on the committee, the connecting roads over which the traffic passes represented on the committee shall be held responsible for the maintenance of rates, and shall under no circumstances charge less than the full proportion of the through rate, and all roads represented on this committee shall refuse to receive any traffic upon which the agreed rates established by this committee are not maintained, and joint notice to that effect shall be given to all connecting roads."

#### LIVE STOCK RATES.

From April 10 the rates on live stock from Chicago to New York are to be 45 cents per 100 lbs. It has been agreed to divide this business on the same basis as other east-bound freights. A later notice is that the new rates will not take effect April 10, the date being postponed until further arrangements are made.

#### A MINNESOTA POOL.

The St. Paul *Pioneer-Press* says: "At a meeting held last week in New York, an arrangement was effected for pooling the business of the two roads (Northern Pacific and the St. Paul, Minneapolis & Manitoba) between St. Paul and Minneapolis or Duluth and Glyndon, Fargo and Moorhead. Some of the details are not yet agreed upon, but will be ratified at St. Paul probably this week. The gross tonnage of both roads between the points named will be pooled, the earnings from such tonnage will thus be divided by fixed percentages. These percentages will be based upon exhibits of the actual business originating at or destined to the different pooling points. The arrangement stipulates that rates shall be maintained by both companies as nearly as may be found practicable to effect a physical as well as a monetary division of the business, and to effect this plan, and at the same time make easier an interchange of traffic, it is agreed to supply new switches and side-tracks between the main lines at the pooling points. The passenger business between Lake Superior and Fargo and Moorhead was wholly assigned to the Northern Pacific, as the St. Paul, Minneapolis & Manitoba does not compete for passenger traffic to these points."

#### EMIGRATION TO THE NORTHWEST.

Mr. J. D. Brown, Assistant General Passenger Agent of the Chicago, Milwaukee & St. Paul at St. Paul, was in the city yesterday. Mr. Brown states that the emigration to the Northwest was simply immense. Nothing like it has ever been known. During the last week, he says, there were often from 1,000 to 1,500 emigrants at the Union Depot at St. Paul waiting for transportation North, and not a solitary coach in the depot. The roads leading to St. Paul are all taxed to their utmost capacity. Special trains of empty cars are taken from Winnipeg and all points in the Northwest at extra fast time to Chicago to take away the large number of emigrants daily arriving here.

The Rock Island received 300 emigrants from the Michigan Central and Grand Trunk, all of whom were taken to the Northwest via the Alberta Lea route. Twenty car-loads of emigrants will be received by the Rock Island from the Grand Trunk at Blue Island this morning. These people all come from Canada, and intend to settle in Manitoba. Forty car-loads of emigrant movables belonging to these people will also be transferred to the Rock Island from the Grand Trunk.—*Chicago Tribune*, April 1.

#### RATES TO NORTHERN PACIFIC POINTS.

The Chicago, Milwaukee & St. Paul and the Northern Pacific companies have issued a joint tariff, under which the rates between Chicago, Milwaukee or Racine and St. Paul or Minnesota Transfer, when for Bismarck or Mandan, will be as follows :

First class, 60 cents per 100 pounds; second, 45; third, 85; fourth, 25; class A, 25; class B, 20; class C, 17½; class D, 15. When for Glendive, Miles City, and Montana, Idaho, or Yellow Stone points, or on the Missouri above

Bismarck, the rates on merchandise will be 5 cents more per 100 pounds than those above, and on carload lots will be the same.

From St. Paul to Northern Pacific points the rates are as follows per 100 lbs., in cents :

	1st, 2d, 3d	Grain, flour	Wagons, tools,
	and 4th class.	lime.	furniture, etc.
Bismarck	80	50	70
Mandan	85	50	75
Glendive	120	80	100
Miles City	130	90	111

Rates on immigrant movables per car-load are: Bismarck, \$110; Mandan, \$115; Glendive, \$140; Miles City, \$151.

#### RAILROAD LAW.

##### PUTTING OFF A PASSENGER.

In Nix, administrator, against the South Carolina Railroad Company, the Georgia Supreme Court lately held as follows :

If a passenger be ejected from a railroad train for failure to pay his fare, and after the train is in motion he tendered it, the conductor is not bound to stop the train to receive his fare and take him on board; if the tender were made while the train was standing still, the conductor was bound to receive the fare and admit the passenger.

Though a passenger on a railroad train may have failed to pay his fare when demanded, yet if before being ejected he tendered it, it was the duty of the conductor to receive it and not eject the passenger. If the conductor of a train ejected a passenger so that he was run over and disabled by such train, and another train of the same road passing shortly afterwards extinguished what life was left, a right of action arose, whether the actual death was caused by the first or second train.

##### INTEREST ON DAMAGES.

In McCauley against the Western & Atlantic Co., the Georgia Supreme Court has just decided as follows: In fixing the amount of damages under a suit for destroying property, interest is not recoverable *eo nomine*, but the jury may consider the length of time damages have been with-held, the character of the tort, the conduct of the defendant, and all the circumstances of the transaction, and may, in their discretion, increase the amount of the damages allowed accordingly.

##### LIABILITY FOR CROSSINGS.

In Cox against the East Tennessee, Virginia & Georgia Co., the Georgia Supreme Court holds as follows:

Railroad companies are required to keep in proper repair public roads or private ways established by law where they cross the railroad, and to build suitable bridges, or make proper excavations or embankments. But they are not required to build bridges for crossings which are neither public nor private ways established by law; nor are they responsible for damages resulting from the construction of a bridge narrower than the road at such a crossing.

#### THE SCRAP HEAP.

##### LOCOMOTIVE BUILDING.

The Brooks Locomotive Works at Dunkirk, N. Y., are at work on orders for the New York, Chicago & St. Louis, the Chicago & Atlantic and the Denver, South Park & Pacific roads. About 1,000 men are now employed. A new boiler house was lately finished and a new office building has just been completed. A new Corliss engine of 200 horse-power has lately been erected, replacing a smaller engine. The shops are now lighted at night with the electric light.

The Seaboard & Roanoke shops at Portsmouth, Va., are building a new freight engine for the road. It has 16 by 24-in. cylinders and 54-in. drivers.

The Rogers Locomotive Works at Paterson, N. J., have lately completed eight 16 by 24-in. cylinder American engines and two 17 by 24-in. cylinder Mogul engines for the Savannah, Florida & Western road; four 15 by 24-in. cylinder engines for the Charleston & Savannah, and a number of engines for the Louisville & Nashville.

The Wilmington & Weldon shops at Wilmington, N. C., are building a new freight engine with 15½ by 24-in. cylinders.

The Pittsburgh Locomotive Works have lately completed five passenger and five freight engines for the New Orleans Pacific road.

The moulder in the Paterson locomotive shops have demanded an increase of pay of 20 per cent. In the Danforth Works a compromise was made, the managers giving some of the men, an increase according to their ability and length of service. In the Rogers and Grant Works the increase was refused, and the men struck. Both shops have castings on hand enough to last for some time, as is usually their custom, and they will not be embarrassed by the strike, for several weeks at least.

The Danforth Locomotive Works are building two engines for the Lehigh & Hudson River road.

The Baldwin Locomotive Works in Philadelphia continue busy, though not pressed with orders as they have been for some time past. Still, there is work for a considerable time on hand, and more will probably be forthcoming before it is needed.

T. W. Goodwin & Co., in Norfolk, Va., are building seven engines for the Des Moines, Osceola & Northern road.

##### CAR NOTES.

The Swissvale Car Co., limited, is the name of the corporation which has taken the old car works at Swissvale, near Pittsburgh. The officers are: Frank Rahm, Chairman; C. H. Taylor, Calvin Wells, J. H. Hopkins, M. K. Moore, Charles Donnelly, A. O. Tinstman, Managers; J. W. Watt, Secretary; C. H. Taylor, Treasurer. A good deal of new machinery has been put in the works, and they are now in full running order. The new company has a contract to build and repair all the cars of the Woodruff Sleepers, Car Co., and will also build freight cars of all kinds, especially coal and coke cars. When fully at work they will be able to turn out six freight cars a day.

The Indianapolis Car Works in Indianapolis, Ind., now employ 592 men and are turning out 12 freight cars and 100 car-wheels a day. The shops have turned out 1,195 cars since they were first opened last July, and have orders on hand for a large number.

The Jones Car Manufacturing Co. has completed an enlargement of its works in Schenectady, N. Y., and now employs 400 men. The shops are building a full equipment for the new Saratoga & Mt. McGregor road; several sleeping cars for the Wagner Co., and a number of street cars.

The Gilbert & Bush Co. in Troy, N. Y., recently delivered six passenger cars to the Savannah, Florida & Western road.

The Mobile & Ohio shops in Whistler, Ala., recently turned out a very handsome passenger car for the road.

The South Carolina Railroad shops in Charleston, S. C., are building a first-class passenger car for the road.

Brown, Bonnell & Co. at Youngstown, Pa., have started their new shop, which is fitted with machinery for the manufacture of coupling links and pins for cars.

J. G. Brill & Co. in Philadelphia are building a number of passenger cars to go to Mexico.

The Georgia Car Works at Cartersville, Ga., are turning out 25 freight cars a week on contracts with the East Tennessee, Virginia & Georgia and the Louisville & Nashville roads.

At Allegheny, Pa., March 29, a test was made of one of the United States Car Co.'s screw lever dump cars, under charge of the General Agent, Mr. F. T. Pullen. There were present Manager Baldwin of the Pennsylvania Company, Messrs. H. C. Frick, Stewart, Oliver, Mackintosh and others. The test was very satisfactory, a car loaded with 18 tons of coal being emptied in 30 seconds.

The Gilbert Car Works in Buffalo, N. Y., have taken a contract to build 200 construction cars for the Jersey Shore, Pine Creek & Buffalo road.

##### IRON AND MANUFACTURING NOTES.

Keystone Furnace, at Chain Dam, Pa., has been sold to the Thomas Iron Co., of Hokendauqua, Pa. The price paid has not been made public.

The steel rail mill of the Washburn Iron Co. at Worcester, Mass., is now in full operation.

Hussey, Blinns & Co., in Pittsburgh, have very large orders for shovels, etc., especially for their railroad shovels and locomotive scoops.

The Etna Iron Works, in Pittsburgh, are filling an order for 4-in. iron tubes to go to England.

Laufman & Co. have let contracts for a new sheet-iron mill to be added to their Apollo Iron Works in Pittsburgh.

Colebrook Furnace, near Lebanon, Pa., is making 80 tons of iron a day, with anthracite coal as fuel.

The Rail Market.

Large orders for steel rails are on the market to be placed shortly and there is much inquiry, but few actual sales are reported. Quotations are \$54 to \$57 per ton at mill.

Iron rails are quiet at from \$47 per ton at mill for heavy sections up to \$51 for light rails. Some large orders are reported on the market.

Spikes are lower and are quoted at \$2.90 to \$3.10 per 100 lbs. Fish plates and track-bolts unchanged.

Steel blooms have been offered in Philadelphia at \$42 per ton, duty paid, but no sales are reported.

Old iron rails are dull and nominal at \$29 to \$29.50 per ton in Philadelphia.

##### MOGUL PASSENGER LOCOMOTIVES.

Mr. F. M. Wilder, Superintendent of Motive Power and Machinery of the New York, Lake Erie & Western Railroad, has recently completed two Mogul engines to be used for passenger service. They have 5-ft. driving wheels, 20 by 24-in. cylinders; fire-box, 10 ft. by 33 in., for anthracite coal; boiler 52-in. diameter with 168 2-in. tubes. The total wheel-base is 22 ft.; rigid wheel-base, 15 ft. The total weight of engine is 92,000 lbs., with 79,000 lbs. on the driving wheels. The tender has a capacity of 32,000 gallons of water and 6 tons of coal. The tender has paper wheels, the journals being 4 in.

The engines are now used to run the Atlantic and the Pacific express. The latter leaves Jersey City at 7:20 p.m., and the former arrives at 7:10 a.m. The engines, it is said, take 16 cars at an average speed of 31 miles per hour. The cars average about 60,000 lbs. in weight, the total weight of cars being 960,000 lbs. The run is from Jersey City to Port Jervis, a distance of 88 miles. The maximum grade is 60 ft. per mile for 4 miles. There is one grade of 40 ft. per mile for 13 miles.

Six-coupled engines have been used before for passenger service on the heavy grades of the Baltimore & Ohio and on the Pennsylvania roads, but so far as we know these are the first engines of this kind which have been built for ordinary passenger service where there are no exceptionally heavy grades.

##### TRAIN ROBBERIES.

A dispatch from Little Rock, Ark., April 1, says: "Another and interesting chapter has been added to the story of the robbery of the train on the Iron Mountain Railroad south of this place in September last, by a confession recently made by Archie Horn, one of the trio of boy desperadoes, who was proven guilty of the crime and sentenced to seventy years in the Flattie Prison. The robber Phil Delany died soon after sentence was pronounced and the prison doors closed upon him. Horn and Monroe are still living, having been buoyed up by the hope of a pardon. At the time of their capture considerable money was found on them, it being a portion of the proceeds of the raid on the train. A large amount was also buried in divers places, some of which was subsequently found. Horn, however, confesses that a large amount of the money is still undiscovered, asserting that he and his companions concealed a large sum directly after plundering the train and passengers, and that he marked the spot so as to be able to find it easily at any future time. He claims the money is buried at a certain point not far from Ultima Thule, Ark., and yesterday Col. Williams, Warden of the State Prison, and a guard started with Horn for the spot in question. The party left the train at Washington and proceeded on their destination in a hack at a late hour to-night. Nothing has been heard from them. The outcome of the singular expedition is awaited with considerable curiosity, many believing that the hidden treasure is a myth, having no foundation except in Horn's imagination."

##### OPENING THE WINDOW.

Maybe a man feels happy, and proud, and flattered, and envied and blessed among men when he sees a pretty girl trying to raise a window on a railway car, and he jumps up and gets in ahead of the other boys, and says: "Allow me?" oh, so courteously. And she says: "Oh, if you please, I would be so glad," and the other male passengers turn green with envy, and he leans over the back of the seat and tackles the window in a knowing way with one hand, if peradventure he may toss it airily with a simple turn of the wrist; but it kind of holds on, and he takes hold with both hands, but it sort of doesn't let go to any alarming extent, and then he pounds it with his fist, but it only seems to settle a "little" closer into place, and then he comes around, and she gets out of the seat to give him a fair chance, and he grapples the window and bows up his back, and tugs, and pulls, and sweats, and grunts, and strains, and his hat falls off, and his suspender buttons fetch loose, and his vest-buckle parts, and his face gets red, and his feet slip, and people laugh, and irreverent young men in remote seats grunt and groan every time he lifts, and cry out: "Now, then, all together!" as if in mockery, and he busts his collar at the forward button; and the pretty young lady, vexed at having been made so conspicuous, says, in her iciest manner: "Oh, never mind; thank you! It doesn't make any difference," and then calmly goes away and sits down in another seat; and that wearied man gathers himself together, and reads a book upside down—oh, doesn't he feel good, just!—*Burlington Hawkeye*.

##### THE MISSOURI TRAIN ROBBERY.

A dispatch from Kansas City, Mo., March 27, says: "John Land, one of the men engaged in the robbery of the Chicago & Alton train at Blue Cut, made a confession to the

grand jury at Independence to-day. He said that the first intimation he had of the intended robbery was on the morning of Sept. 7, the day upon which the deed was committed. Breed Champlin and John Bugler went to him when he was digging a well and broached the subject of robbery. He at first declined to join them. They insisted he should, and held out a prospect of gaining money. He went to Glendale, where he was introduced to a man said to be Jesse James, who told him of the plan to rob the train that night. He then agreed to join in the attempt. The entire party collected near Blue Cut. There were 13 of the men; of these, five belonged to the old gang, and the rest were boys from the neighborhood. Two of them left early in the game, and joined the old gang, who left that night immediately after the robbery. Land says that all those now under arrest and all the greenhorns concerned in the affair were merely stool pigeons. The members of the old gang entered the express car and went through the train. The country boys kept up a noise outside and did nothing more. After the robbery the party went into the woods near by, when the leaders, who had all the booty, said: 'Boys, we have not time to divide, they are too hot after us, and we did not get the money we expected to any way; but we will all meet on the right fork of the Blue next Wednesday night [just one week from the night of the robbery], and we will divide then.' Saying this the five mounted their horses and rode away with the booty in their possession, while Land and his companions went home no richer than when they started out. Before the night arrived which had been set for the divide, most of them were safely jailed and the others were fleeing the country. Land declares his belief that the robbery was a put up job, deliberately planned by James and his gang for the double purpose of securing plunder and getting the country boys into trouble in order to divert the attention of the authorities from their own operations. He seemed to be in great dread of Jesus James and his pals, and always referred to them as 'the old gang,' saying with a nod and a wink, 'You know who I mean.' Land is a beardless boy of 19 years of age. His family is eminently respectable, and he always bore a good reputation until this affair. Land was remanded to jail until to-morrow, when the trial of Chapman and Bugler will begin. Land's case came first, and the prosecuting attorney asked it to be put at the foot of the docket, which shows that Land is to be used as a witness. The next cases called were those of Bugler and Chapman. They answered that they were ready for trial and the jurors were sworn. The court adjourned until to-morrow morning, when Bugler's trial will be proceeded with."

#### Electric Lighting of Railroad Cars.

It is interesting to know that Charles E. Buell of this city has recently been awarded letters patent for devices for so controlling electrical storage as to overcome the difficulties encountered by the electrical engineers of Europe, and make the lighting of not only railway trains, but isolated residences and thickly-settled communities by stored electricity not only practicable, but very desirable, his patents obtained, and to be obtained, securing to him every part of an electric lighting system. He thinks a dynamo-electrical machine of two horse-power ample sufficient for lighting the longest railway train by stored energy, and that such machines can be supplied for less than \$200 each. He is having an improved form of dynamo machine built at the factory of James Buell & Son, Woorn, Mass., which he thinks will produce a current equal to that produced by 600 cells of the Grove battery, when propelled by a two-horse power motor. His system for railway trains requires no attendance or skill in connecting, in turning on, or off, and requires no replenishing of material consumed. It has been demonstrated that the incandescent lamp will last very much longer at a higher luminosity when used with currents from stored electricity, as compared with currents direct from the dynamo machine. The light emitted from the lamp being due to vibratory motion of the particles of the exceedingly frail filament of carbon and the jerky motion of the propelling engine results sooner or later in rupture of the filament.—*New Haven (Conn.) Palladium*, March 28.

#### Precautions Against Loss and Damage by Fire.

General Superintendent Jeffery, of the Illinois Central Railroad has issued the following circular to officers and employés of his road:

"All officers and employés must take every possible precaution to guard against and prevent loss and damage by fire to the property of this company. At the repair shops the employés must be well organized and regularly drilled in the use of all the appliances for extinguishing fires. Chimneys, stove pipes, smoke-jacks and similar dangerous parts of buildings must be kept in thorough order. Engineers must know that the stacks and ash-pans of their engines are in good condition, so that fires will not be started upon or adjacent to the right of way. Trainmen must exercise care in keeping up fires on passenger trains and in caboose cars and promptly report defects in heating apparatus. Agents must know that stoves, pipes, chimneys, etc., in their buildings are in safe condition and promptly report necessary repairs. They must also see that the station ground near buildings and cars is clear of combustible material. Section foremen and men must keep a sharp lookout and promptly extinguish fires on right of way. They must use good judgment in burning grass and wrecks, so that fences and neighboring property will not be injured. Constant vigilance is necessary on the part of all."

#### Winter Railroading in Manitoba.

A dispatch from Winnipeg, dated March 25, says: "Another blizzard is raging. A dispatch from Reaburn says a train is snowed in with 150 passengers, who have had only one meal to-day. Their provisions are all gone, and the fuel has given out. The railway company sent all the provisions it could get at the Portage, but the relief train was also blockaded within two miles of Reaburn. Men have gone after provisions from Reaburn, but at five o'clock had not returned, and as the wind was blowing furiously, they were not expected to-night. There is plenty of wood two miles east of Reaburn; but the men sent after fuel had not returned either. A train loaded with supplies is here waiting, but is unable to go out. There are no houses at Reaburn, and only one farm house in the vicinity, and as the provisions in the section-house are eaten up, the passengers must go hungry till some time to-morrow. No train from the South has reached here since yesterday, and yesterday's train going south only reached St. Vincent at the boundary this afternoon. Trains are all canceled to-day."

#### Length of English Railroad Tunnels.

A correspondent of *The Engineer* gives the following list of the longest tunnels in that country: "The Woodhead, Manchester, Sheffield & Lincolnshire, 5,296 yards; Stanedge, London & Northwestern, 5,280 yards; Medway, Southeastern, 3,640 yards; Sevenoaks, Southeastern, 3,600 yards; Box, Great Western, 3,237 yards; Summit, Lancashire & Yorkshire, 2,869 yards; Sapperton, Great Western, 2,800 yards; Pohill, Southeastern, 2,750 yards; Kilsby, London & Northwestern, 2,423 yards. In the case of the

two first on the list, I know the lengths given are approximately correct from personal observation, and as those given for the Box and Kilsby correspond closely with your figures, I have no doubt that this list is a reliable one; in the case of the Stanedge, moreover, there is a canal tunnel runs through the hill alongside of the railway tunnel of about the same length."

The Kilsby tunnel is said to have cost £120 5s. (\$585.40) per yard run. The Honiton tunnel, on the London & Southwestern Railway, is 1,350 yards in length, in red marl and green sand, and cost £50 (\$243) per yard. The Lydgate tunnel on the London & Northwestern Railway is 1,332 yards in length, chiefly in the coal measures, and cost £30 (\$146) per yard. The Guildford tunnel is 965 yards in length.

#### An American Locomotive in England.

It was announced some months ago that Mr. Eames, the inventor of the vacuum brake which bears his name, had bought the locomotive with a single pair of large driving wheels, built about two years ago at the Baldwin Locomotive Works and illustrated in the *Railroad Gazette* of May 7 and June 11, 1880. In *Iron* it is stated that this engine was tried at Manchester on March 15, being started from the Victoria railway station in connection with the Lancashire & Yorkshire train to Leeds. The engine, which is on the American system, was made at Philadelphia for the Eames Vacuum Brake Company. Mr. Eames, we understand, has permission from several English railways to run one of his engines on their lines, and this one has been made especially and brought over to this country. It was put together at the works of the Lancashire & Yorkshire Railway at Newton Heath, and made its first trip on an English railway. It is much larger than the English locomotive. The engine and tender are nearly as long again as an English locomotive and tender. The tender will carry 4,000 gallons of water and ten tons of coal. This will enable the train to make a journey from London to Edinburgh without stopping to take in water. The width also gives a greater surface to the fire-box, which is 7 ft. wide and more than 8 ft. long. A greater heat is thus generated in the steel boiler and the result is a greater sustained speed. It is not claimed that the engine will exceed in speed the English locomotives, but it will, it is said, keep up a high rate of speed for a much longer period."

#### A Remarkable Accident.

A very remarkable accident occurred on the Richmond & Danville Railroad, near New's Ferry, yesterday morning. Pat. Dacey, engineer on a freight train, suffered a stroke of paralysis as his train was approaching New's Ferry station. The fireman was outside of the cab at the time and did not observe that the engineer was paralyzed until he noticed that he failed to blow his whistle on approaching the station. He then went to him and found him sitting down, paralyzed and unconscious. The fireman in great alarm closed the throttle and jumped off the locomotive, receiving some slight injuries about the breast. The engine rushed at its own will without guidance and presently ran into the rear of another freight going toward Danville. The collision threw several cars from the track, doing considerable damage. Engineer Dacey was taken to his home in Danville, uninjured by the collision. His condition, however, is critical.—*Greensboro (N. C.) Patriot*, March 22.

#### Sykes' Signals.

We learn that the patents for this system of signals, which is very highly recommended in England, have been bought by the Union Switch & Signal Company, and that the manufacture of the Sykes signals has been incorporated with the business of that company.

#### A Long Walk.

The New York, Pennsylvania & Ohio Railroad Company has a track walker in its employ at Randolph, N. Y., who has been on duty for 18 years, and who in all that time has never once missed his daily rounds of 12 miles per day. He outranks the pedestrians, having compassed a grand total of 78,888 miles.—*Port Jervis Gazette*.

#### OLD AND NEW ROADS.

**Austin & Northwestern.**—The track on this road is now laid for 35 miles from Austin, Tex. A third engine and a passenger car for the road have been received. The first section of 20 miles has been inspected and approved by the State Inspector.

**Austin & Southeastern.**—This company has been organized to build a narrow-gauge road from Austin, Texas, east by south through Bastrop to La Grange, about 60 miles. The town of Bastrop has voted to give the company right of way for about 15 miles, depot grounds and \$16,000 in money.

**Bellaire, Zanesville & Cincinnati.**—This company has voted to execute a mortgage and issue bonds to the amount of \$1,200,000 for the purpose of extending the road from Woodsfield, O., westward. A new survey of the line has been ordered.

**Boston, Hoosac Tunnel & Western.**—A dispatch from Albany, N. Y., April 5, says: "The Attorney-General rendered his decision to-night in the case of the people of the state against the Boston, Hoosac Tunnel & Western Railroad Company and others. The cause of the action, the Attorney-General says, is that the company claims to be a consolidated company, while it has never lawfully perfected the consolidation claimed, and was exercising powers and privileges which it had no right to do under the laws of the state. The application, therefore, for a discontinuance of the proceedings is denied. The place of trial is changed at the request of counsel for the company from Onondaga County to Cheunay County."

**Bradford, Eldred & Cuba.**—This company has completed its own track from Ceres, N. Y., northward to Bolivar, seven miles, where its trains have heretofore used the Allegheny Central track. The work has been done in about two weeks.

**Chicago & Alton.**—It is reported that this company will extend its Western Division from Washington, Ill., to Peoria, about 12 miles. This has been reported several times before.

**Camden & Cape May.**—The old project for a new line from Camden, N. J., to Cape May has come up again, as it does about every second year. It is not very likely to be carried through.

**Chicago, Burlington & Quincy.**—The track on the Denver Extension is now laid for five miles beyond the late terminus, reaching the Platte River about 80 miles from Denver. Work on the grading of the gap is now well advanced, and the company hopes to run trains to Denver by July.

**Chicago, Freeport & St. Paul.**—The Chicago, Freeport & Northwestern and the Chicago, Freeport & St. Paul

companies have been consolidated under this name. The company has no road built or begun. Its projected line is from Chicago by Freeport, Ill., and Cadiz, Wis., to St. Paul.

**Chicago, Milwaukee & St. Paul.**—This company has acquired possession of the Hastings & Stillwater road, transferred to it in payment for advances made; the Illinois & Wisconsin (Rockford to Rockton), leased perpetually; the Janesville, Rockford & Beloit, transferred in payment of advances, and the Iowa Eastern (Beulah to Elkhorn), purchased. The Iowa Eastern was lately secured by purchase of the stock; the other transfers merely formal, the companies having been organized to build short branches of this road, and having been always owned by this company.

**Chicago & Northwestern.**—Preparations are being made to change this company's line from Galena, Ill., to Montfort, Wis., and its branches from 3 ft. to standard gauge.

The Lake City Branch has been completed by laying track between Dayton, Ia., and Stratford, 13 miles. The branch extends from the Northern Iowa Division at Jewell Junction nearly due west to Lake City, about 60 miles. Both ends of the branch have been completed for some time, leaving this gap in the middle.

**Chicago, St. Paul, Minneapolis & Omaha.**—The Blue Earth City Branch has been extended from Blue Earth City, Minn., south to Elmore, 10 miles. The new terminus is 44 miles from the main line at Crystal Lake, and connection is there made with the Northern Iowa Division of the Chicago & Northwestern.

**Cincinnati, Van Wert & Michigan.**—This road has been extended from the late terminus at Pleasant Point, O., northward two miles to Latty, 15 miles north of Van Wert, and 26 miles from the southern terminus at Shane's Crossing.

**Cleveland, Akron & Columbus.**—The Ohio District Court has reversed the judgment of the Court of Common Pleas and set aside the decree of foreclosure and sale under which this company acquired the old Cleveland, Mt. Vernon & Delaware road. Of this decision the Akron (O.) *Beacon* says:

"The decision of the lower Court was not reversed in the important matter of the priority of lien-holders but was sustained, as was the report of the Special Master Commissioner, but the District Court decided that it was an error on the part of the Common Pleas Court to allow the sale to proceed while an appeal was pending, and for that reason the sale was set aside and a new sale ordered."

It appears probable that a new sale will be ordered.

**Cleveland & Marietta.**—It is reported that this road has been sold to the Wheeling & Lake Erie Company. It was formerly the Marietta, Cleveland & Pittsburgh, and was sold under foreclosure some time ago. It extends from Marietta, O., to Canal Dover, 98 miles.

**Danville & New River.**—This company has resolved to issue \$60,000 in new second-mortgage bonds for the purpose of completing the extension of the road to Henry Court House, Va. Bids will be asked for the bonds.

**Denver & Rio Grande.**—At the annual meeting, held April 4, the stockholders voted to approve the action taken by the directors; also to approve a lease of the Denver & Rio Grande Western road, now under construction.

**Fayetteville & Winston.**—This company has been organized to build a railroad from Fayetteville, N. C., west by north to Winston, about 120 miles. The line indicated would be generally parallel to the Cape Fear & Yadkin Valley road.

**Ft. Wayne & Jackson.**—Detroit papers report that negotiations are in progress for the sale of this road to the Grand Trunk, with which it is to be connected by an extension from Jackson to Pontiac. The road extends from Jackson, Mich., to Ft. Wayne, Ind., 100 miles; its present owners bought it at foreclosure sale several years ago.

**Galveston, Houston & Henderson.**—The statement published in Galveston that Mr. C. P. Huntington had purchased a controlling interest in this road was not quite correct. Mr. Huntington has obtained from the parties in control an equal right to use the road for running all his trains between Houston and Galveston, by the payment of one-half the expense of maintenance and 6 per cent. per annum on one-half of a stated sum agreed upon as the cost of the property; what that amount is has not been made public. The *Galveston News* of March 14, had the following:

"Yesterday Judge Merrill, in the United States Circuit Court, determined the issues between Russell Sage and Jay Gould, Trustees, and the Galveston, Houston & Henderson Railroad Company of 1871—the old fight between the stockholders and the bondholders of the road. The cause was called for trial yesterday morning, and both parties being ready and appearing by their counsel (Edward T. Austin, for complainants, and W. P. Ballinger, for the defendant company) and after hearing and considering the additional demurrers of the defendant, the same were overruled, and the Court having heard the pleadings and evidence and argument of counsel, rendered its decree, the substance of which is as follows: The complainants representing all the bondholders recover a judgment against the defendant company on account of the mortgage debt for the sum of \$1,869,941, which amount the defendant is required to pay on or before April, 24, 1882, with interest thereon from Jan. 1, 1882, at 7 per cent. per annum; in default of such payment, then the entire property of the company shall be sold. Notice of the sale is to be published three months, once a week, in one newspaper published in Galveston, one in Houston and one in New York. The decree provides that at said sale the master shall require the purchaser to pay in money in the following order of priority:

"1. The amount of the costs and allowances made in this suit, including the expenses of the sale.

"2. The amount due for loans and advances made by the complainants, \$196,791.66, with the interest thereon.

"3. The amount due to the holders of the coupons which matured prior to Jan. 1, 1880, with interest from Jan. 1, 1882, on the amount due that date, \$155,927.92.

"At the request of complainants, and agreed to by defendant, Mr. C. Dart, of Galveston, is appointed by the Court, Special Master to make the sale and distribute the proceeds. The earliest date at which the sale could be made under the decree will be the first Tuesday in August. The property embraced in the suit is the railroad from Galveston to Houston, and all its rolling stock, depot grounds, right of way, franchise, and all the property and effects of whatever kind, description, and wheresoever situated, belonging to the Galveston, Houston & Henderson Railroad Company, and will be sold as an entirety."

**George's Creek & Cumberland.**—The suit of Phelps & Co. to recover about \$400,000 on the contract for building this road was recently tried at Hagerstown, Md., and the Court has just decided against the contractors and in favor of the company.



## Cumberland Valley.

This company owns a line from Harrisburg, Pa., to Williamsport, Md., 82 miles. It leases and practically owns the Dillsburg & Mechanicsburg, a branch to Mechanicsburg, Pa., 7.7 miles; the Southern Pennsylvania, a branch to Richmond, Pa., with a spur to Mercersburg, 21.4 miles in all, and the Martinsburg & Potomac, from Williamsport to Martinsburg, W. Va., 12 miles. It controls, but does not work, the Mont Alto road, a branch to Waynesboro, Pa., 18.3 miles. The report is for the year ending Dec. 31.

The general account is as follows:

Stock	\$1,777,850.00
Bonds	352,000.00
Due for dividends and coupons	48,567.20
Income account, balance	597,125.17
Total	\$2,775,642.37
Road	\$1,887,165.97
Trustees' contingent fund	580,349.54
Materials	46,639.76
Accounts	110,120.85
Ca-h.	143,636.27
	2,775,642.37

Of the stock there is \$241,900 first-preferred, \$243,000 second-preferred and \$1,292,950 common stock. Of the bonds \$161,000 are first-mortgage, \$109,500 second-mortgage and \$81,800 plain bonds. The contingent fund is chiefly invested in the leased lines.

The traffic for the year was as follows:

Train miles:	1881.	1880.	Inc. or Dec.	P. c.
Passenger	235,093	188,808	I. 47,085	24.9
Freight	194,077	147,360	I. 40,817	31.8
Total locomotive miles	518,383	418,804	I. 89,755	15.1
Passenger carrie	452,992	310,083	I. 61,819	15.9
Passenger miles	8,067,373	7,386,350	I. 1,581,067	21.4
Tons freight carrie	547,438	444,721	I. 102,717	23.1
Ton miles	18,364,634	14,048,662	I. 4,316,92	30.7
Avg. train load:				
Passenger, No.	28.01	39.12	D. 1.11	2.9
Freight, tons	94.61	95.40	D. 0.79	0.8
Avg. rec'dpt:				
Per ton per mile	2.117 cts.	2.188 cts.	D. 0.81 ct.	3.7

The freight traffic is for the main line only. The traffic shows a large increase, but at reduced rates.

The earnings of the main line for the year were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Freight	\$386,836.17	\$337,003.94	I. \$49,840.23	14.8
Passengers	204,524.96	173,87.10	I. 30,997.77	17.7
Mail, etc.	31,157.34	26,111.65	I. 5,055.63	19.8
Total	\$622,538.47	\$36,945.78	I. \$85,592.60	16.0
Expenses	402,108.65	306,745.95	I. 95,362.70	31.1
Net earnings	\$220,429.82	\$230,193.71	I. \$9,770.01	4.3
Gross earn. per mile	7.301.93	6,543.12	I. 1,043.81	16.0
Net	2,688.17	2,837.32	I. 110.15	4.3
Per cent. of exps.	64.57	57.13	I. 7.44	.....

The expenses were largely increased by extensive renewals and other expenditures for permanent improvements of property. There were 690 tons of steel rails and 35,821 new ties laid.

The earnings of the leased lines were as follows:

	Dill's & Mich. Mart. & Pot.	South. Pa.
Gross earnings	\$27,323.81	\$21,203.30
Expenses	12,712.89	16,884.24
Net earn	\$14,610.92	\$4,310.06
Gross earn. per mile	3,548.55	1,766.94
Net	1,805.70	330.92
Per cent. of exps.	46.57	79.64
Deficit		122.02

All these roads show a considerable gain in gross earnings and the first two a large gain in net earnings. The loss on the Southern Pennsylvania was due to the renewal of three bridges, a new turn-table and other improvements.

The Mont Alto road carried 63,132 passengers and 40,213 tons of freight. The earnings were \$31,133.29; expenses, \$28,159.75, leaving the net earnings \$4,934.54, or \$269.59 per mile. From the net earnings \$2,880.66 were spent for new construction and equipment, leaving a balance of \$2,052.88. Of the passengers carried about 45,000 were excursionists to Mont Alto Park.

The income account was as follows:

	Net earnings	\$220,429.82
State tax	\$13,639.6	.....
Interest on bonds	26,548.00	.....
Dividends, 10 per cent.	177,785.60	.....
Surplus for the year		217,025.6

Surplus, Jan. 1, 1881

Surplus, Jan. 1, 1882

During the year a number of new buildings were erected and others enlarged or improved. Several new water stations were put up. New stock yards were built at several points. Nearly all the bridges were strengthened.

Three new engines, 50 freight and 3 cabooses, cars were added to the equipment. Two more engines and four passenger cars have been contracted for.

Considerable business has been received from the Shenandoah Valley road, and more is expected when the connections of that road are finished.

## Chicago, Burlington &amp; Quincy.

The following statement for 1881 is published in advance of the full annual report, which is not quite ready to be issued. The statement includes all the lines worked by the company.

The total mileage at the close of 1881 was 2,924 miles, against 2,772 miles at the end of 1880, an increase of 152 miles during the year. The average length of road operated in 1880 was 2,653 miles; while in 1881 the average length was 2,823 miles.

The capital account shows the following:

	1881.	1880.	Inc. or Dec.	P. c.
Stock, Dec. 31	\$55,337.44	\$54,43.197	I. 1,104.25	2.1
Bonds	50,122.725	54,418.725	I. 1,262.020	2.0
Total	\$114,460.171	\$108,831.92	I. 1,262.020	2.0

Additional to construction account in 1881 amounted to \$6,217,296; to equipment, \$1,796,945, a total of \$8,014,241 added to property accounts.

The earnings for the year were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Freight	\$16,595,819	\$16,051,197	I. \$541,62	3.4
Passengers	3,616,086	3,534,209	I. 81,877	2.3
Mail, etc.	1,112,245	903,641	I. 208,604	23.0
Total	\$21,324,150	\$20,492,047	I. \$832,103	4.1
Expenses	11,066,114	9,804,491	I. 1,262,020	12.9

Net earnings \$10,257.66 \$10,687.533 D. \$420,917 4.0

Gross earn. per mile 7,446 7,724 D. 2.8 3.6

Net earn. per mile 3,635 4,028 D. 393 0.8

Per cent. of exps. 51.9 47.8 I. 4.1 1.1

It will be observed that, notwithstanding the increased mileage in 1881, the net earnings have decreased \$420,917.

20. The gross earnings, however, show an increase of \$832,103.76, and the increase of expenses has been \$1,262,020.16. Of this, about \$400,000 may be said to be due to the increase of business, leaving about \$830,000 of extraordinary increase in the cost of operation and maintenance for the year, or about \$305 per mile of road operated. This is due to increased prices of labor and material, and also largely to the snow blockade of February and March, 1881, and to the extraordinary floods in the Mississippi and Missouri rivers, in both spring and autumn. The spring flood in the Missouri River was the highest since railroads occupied that region. The new mileage added late in 1880 and during 1881, increasing so considerably the average number of miles operated during 1881, is mostly in new and unsettled regions, to and from which business is naturally light for the present.

Illinois and Iowa during the year 75 1/2 miles of single track have been laid with steel rails in place of iron, and 19 miles of steel rails have been laid in new second track, and 25 1/2 miles in new side tracks. The total number of miles of steel rails in all tracks east of the Missouri River on Dec. 31, 1881, was 1,160. This includes the whole main line in Illinois and Iowa.

During the year 1881, 14 miles of second track have been built in Illinois and 5 miles in Iowa. The number of miles of second track owned by the company on Dec. 31, 1881, was, in Illinois, 131; in Iowa, 22.

In Nebraska during the year 44 miles of main line track have been laid with steel rails in place of iron; making the number of miles of steel rail, single track, in the road west of the Missouri River on Dec. 31, 1881, 126, of which 38 miles is in the main line between Omaha and Plattsmouth and Kearney Junction, and 28 miles in the track of the Atchison & Nebraska Railroad. The latter was in the road Dec. 31, 1881, but was not reported.

The general condition of the entire road and equipment has been fully maintained during the year.

## Panama.

This company owns a line across the Isthmus of Panama from Aspinwall to Panama, 47.5 miles. It also owns steamers which run between the terminal points of the road and other Central and South American ports. The following statements for 1881 were presented at the annual meeting in New York:

The company has a bonded indebtedness of \$3,983,000 7 per cent., sterling bonds, to meet which it holds a sinking fund of \$1,118,969.67, and \$2,955,000 of 6 per cent. gold sinking fund bonds to meet which \$225,000 annually of the Colombian government subsidy was pledged until 1908, to be applied first to the payment of interest, and second as a cumulative sinking fund for the redemption of the principal.

The earnings for the year were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Earnings	\$2,371,370	\$2,277,674	I. \$93,086	4.1
Expenses	523,593	651,069	I. 131,076	20.0
Total	\$1,847,777	\$1,623,005	I. \$224,772	13.8
Gross earn. per mile	40,924	47,951	I. 1,973	4.1
Net earn. per mile	38,001	34,100	I. 4,732	13.8
Per cent. of exps.	22.1	28.7	I. 7.44	.....

The income account is as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Net earnings			I. \$1,847,777	.....
Balance from 1880			I. 1,383,991	.....
Total			\$3,231,768	.....
Subsidies			\$26,000	.....
Interest on bonds			270,694	.....
Drawbacks			10,767	.....
Dividends			2,398,200	.....
			2,930,571	.....
Balance			\$262,197	.....

The dividends amounted to 30 per cent. on the stock, part of them being paid from the accumulated surplus. In 1880 dividends amounting to 16 per cent. were paid.

## St. Paul &amp; Duluth.

This company owns a main line from St. Paul, Minn., to Duluth, 156 miles, and the Knute Falls Branch, 6 miles. It works under lease to Stillwater, 18 miles, and the St. Paul, Stillwater & Taylor's Falls, from Wyoming to Taylor's Falls (added in 1880), 21 miles, making 196 miles in all. The main line for 24 miles from Duluth is owned and used in common with the Northern Pacific. The report is for the year ending Dec. 31.

The balance sheet, condensed, is as follows:

	Preferred stock and scrip	\$5,176,167
<tbl

## MASSACHUSETTS MINOR RAILROADS IN 1881.

NAME OF ROAD.	PROPERTY.				CAPITAL.				EARNINGS.				Interest, rentals and dividends				
	Miles owned...	Miles leased...	Locomotives...	Passenger cars...	Stock...	Bonds...	Other debt...	Train miles...	Passenger miles...	Train miles...	Gross earnings...	Net earnings...	P. c. of exps...				
Ashburnham	3	1	1	30,000	\$0,000	\$0,000	\$0,000	7,800	41,365	3,386,031	174,688	156,311	1,133	108	90	400	
Boston, Barre & Gardner	37	8	11	871,878	574,300	227,607	114,843	2,193,327	18,377	4,721	497	89	18,378				
Fall River	12			200,000	200,000	102,096	90,755	100,266	22,775	7,630	2,484	586	76	14,000			
Fall River, Warren & Providence	6			150,000	300,000	5,098	19,063	652,903	167,120	28,001	16,214	11,787	4,667	1,964	58	9,035	
Hanover Branch	8		6	12,950	30,000	1,351	22,510	304,867	57,011	16,942	17,137	4,259	2,142	49	7,071		
Nantasket Beach	7	5	16	9	237,112	250,000	127,804	34,063	431,681	35,708	28,932	6,776	5,191	81	5,948		
New London Northern	121	22	24	306,150,000	1,499,500	214,902	500,938	6,415,412	19,318,243	611,044	413,326	107,718	5,050	1,634	67	183,632	
Norwich & Worcester	66	20	18	578	2,604,400	400,000	62,822	525,849	6,067,650	19,354,211	789,714	460,447	330,267	12,117	5,140	58	323,778
<i>Narrow-gauge roads:</i>																	
Boston, Winthrop & Point Shirley	3	1	3	10,450	18,000	18,773	15,090	180,280	6,980	6,237	750	2,330	250	89	1,411		
Grafton Centre	3	1	1	29,830	10,000	14,083	87,960	4,659	4,650	2,100	1,520	102	910				
Martha's Vineyard	9	1	4	40,000	36,000	2,192	8,370	219,560	6,360	4,758	1,602	707	178	75	2,165		
Nantucket	4	1	2	60,000	19,000	8,510	120,340	4,449	2,330	2,110	1,112	528	53				
Worcester & Shrewsbury	3	3	27	36,823	15,000	3,343	30,000	551,012	14,181	11,065	3,086	4,720	1,029	79	1,050		

\* Leased to Central Vermont Company. † Leased to New York & New England Company. ‡ Deficit. The Ashburnham, the Nantasket Beach and all the narrow-gauge roads are exclusively passenger roads. Dividends paid were: Hanover Branch, 4½; New London Northern, 6; Norwich & Worcester, 10 per cent.

The statements given above are from the reports to the Massachusetts Railroad Commission for the year ending Sept. 30, 1881; only those roads are given which do not otherwise report or are not included in lessee's returns.

2,467; increase, 240 miles. Miles operated at the beginning of 1882, 2,565.

	1881.	1880.	Increase.	P. c.
Gross earnings.....	\$24,694,101	\$20,508,113	\$3,585,988	17.5
Expenses.....	13,859,307	12,045,669	1,813,638	15.1

Net earnings..... \$10,234,794 \$8,462,444 \$1,772,350 21.0

Gross earn. per mile..... 8,001 8,313 588 7.1

Net..... 3,781 3,430 351 10.2

Per cent of exps..... 37.52 58.73

The income account for the year is as follows.

Gross earnings from transportation.....	\$24,094,100.95
Operating expenses, including rentals.....	13,859,306.97
Net earnings.....	\$10,234,793.98
Income from other sources :	
Land bonds redeemed from proceeds of land sales.....	420,000.00
Express contracts.....	529,056.40
Sinking fund earnings.....	262,500.00
Dividends on investments.....	20,000.00
Total.....	\$11,529,950.38
Payments from income :	
Interest.....	\$3,508,291.56
Taxe <sup>s</sup> , legal and miscellaneous ex- penses.....	720,121.45
Dividends.....	3,556,530.00
Requirements U. S. account of 1882-4 and 1878 estimated at maximum.....	1,200,000.00
8,984,943.01	

Surplus to credit of profit and loss..... \$2,545,007.37

The construction account has been increased by \$258,883.17; the equipment, machinery and water craft by \$18,762.14; material on hand, including fuel, by \$998,686.90. The stock and bonds on hand Dec. 31 were \$160,128.13; the bills and accounts receivable, \$3,897,295.96, and cash, \$643,255.33. The capital stock remains the same, \$59,275.500. The funded debt has been reduced to \$54,917.000. The \$1,500,000 convertible loan (7 per cent.) has been retired, with the exception of \$7,000, which remained outstanding at the close of the year. The bills and accounts payable at same date were \$4,490,480.87. There was in the hands of the trustees for the further redemption of land bonds the sum of \$612,517.50, and uninvested for the company's sinking funds \$868,759.17, and for the hospital fund \$108,931.72. The company's sinking funds amounted to \$4,816,659.17, exclusive of that in the United States treasury, amounting to about \$1,500,000. Twenty thousand tons of steel rails have been placed on the main track, bridges renewed, trestles filled and extensive dock and terminal structures added at the Oakland water front. The tonnage of vessels arriving at the port during 1881 was insufficient to carry off the wheat supply, and it is estimated that 15,000,000 bushels of the crop of 1881 remain to be moved to tide water, independently of the growing crop, which promises to be the greatest ever raised in California. The Southern Pacific Company has made arrangements to take a large portion of this freight hereafter to the Gulf of Mexico for European markets.

## Wabash, St. Louis &amp; Pacific.

The second annual report of this company gives the mileage operated at the close of the year, Dec. 31, 1881, as follows:

## Lines east of the Mississippi.

Toledo to E. St. Louis.....	435.7
Decatur to Camp Point.....	129.2
Camp Point to Quincy.....	22.8
Bluffs to Hannibal.....	49.9
Maysville to Pittsfield.....	6.2
Clayton to Elavaston.....	34.5
Edwardsville to Edwardsville Clos ing.....	10.2
Detroit to Logansport.....	213.8
W. Lebanon to Leroy.....	14.5
Attica to Covington.....	75.7
W. Lebanon to Leroy.....	14.5
P. & D. Junction to St. Francisville.....	1,9.3
Vincennes to Cairo.....	158.0
Hollis to Jacksonville.....	75.3
Springfield to Havana.....	47.2
Streator to Altamont.....	150.5
Shumway to Effingham.....	8.5
Strawn to Chicago.....	99.7
Urbana to Havana.....	102.2
White Heath to Decatur.....	29.7
Lafayette to State Line (C. I. St. L. & C. 46) ½ for W. St. L. & P.....	23.0
State Line to Keokuk.....	22.7
Hamilton to Warsaw.....	5.0
La Harpe to Burlington.....	19.7
2,211.3	

## Lines west of the Mississippi.

St. Louis to Kansas City.....	270.8
St. Louis Levee to Ferguson Junction.....	10.4
Centralia to Columbia.....	21.8
Glasgow to Salisbury.....	15.9
Moebly to Ottumwa.....	131.0
Brunswick to Council Bluffs.....	224.4
Roseberry to Clarinda.....	21.5
N. L. Lexington to St. Joseph.....	77.1
W. Quincy to Trenton.....	135.9
Keokuk to Humeston.....	131.0
Relay to Albia.....	24.0
Des Moines to Jefferson.....	66.9
1,136.7	

Total miles worked..... 3,348.0

The equipment of the road consists of 551 locomotives;

The report gives a statement in detail of the bonded debt, which consists of a great number of issues, amounting to \$68,592,258.27 by this statement, with a yearly interest charge amounting to \$4,380,082.47. Capitalizing the lease obligations they amount to \$13,555,000, on which the yearly charge is \$739,774.67. The obligations assumed jointly with the Missouri Pacific in relation to the St. Louis bridge amount to \$670,808 yearly.

The traffic for the year was as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Passengers.....	3,215,200	1,002,763	I. 1,222,437	61.3
Pass. miles.....	137,114,727	97,774,576	I. 39,340,151	4.8
Tons freight car- ried.....	5,373,917	4,533,187	I. 860,730	9.0
Ton miles.....	1,149,774,547	1,105,783,390	I. 43,991,148	4.0
Av. receipt:				
Per pass. per mile.....	2,238 cts.	2,398 cts.	D. 0.100 ct.	6.7
Per ton per mile.....	0.928 "	0.862 "	I. 0.066 "	7.7

The average passenger journey in 1881 was 42½ miles; freight haul, 213 miles. The traffic shows a considerable increase, which was, apparently, very largely in local traffic.

The earnings for the year were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Freight.....	\$10,667,906.00	\$9,532,334.22	I. \$1,135,572.68	12.1
Passengers.....	3,067,989.12	2,344,451.63	I. 723,537.47	30.9
Mails.....	298,384.56	221,076.28	I. 77,308.28	35.0
Express.....	343,236.07	286,430.86	I. 50,305.21	19.9
Miscell. a. n.	90,273.18	43,818.71	I. 46,454.47	106.0
Total.....	\$14,467,789.83	\$12,428,111.72	I. \$2,039,678.11	16.4
Expenses.....	10,791,943.66	7,787,348.50	I. 3,005,595.16	38.6
Net earn. ....	\$3,674,846.17	\$4,640,763.22	D. 965,917.05	20.8
Gross earn. per mile.....	5,511.98	6,308.65	D. 886.67	13.9
Net earn. per mile.....	1,400.07	2,389.31	D. 389.24	41.2

The average mileage on which these earnings were based was 2,624.8 miles in 1881, and 1,942.3 miles in 1880.

The income account may be stated as follows:

Net earnings for the year.....	\$3,674,846.17
Interest and dividends received.....	80,583.42
Balance of earnings on sundry pools.....	169,180.55